

Gov. Doc  
Can  
H

Canada. Hydrographic and Map  
Service

159

1959



CANADA

SUPPLEMENT No. 1 TO THE 1955 EDITION

of the

LIBRARY

★ APR 23 1959

UNIVERSITY OF TORONTO

**ST. LAWRENCE RIVER PILOT**

**QUEBEC HARBOUR TO KINGSTON HARBOUR**

**including**

**RICHELIEU AND OTTAWA RIVERS**

*Issued by*

**THE CANADIAN HYDROGRAPHIC SERVICE**

**Surveys and Mapping Branch**

**Department of Mines and Technical Surveys**

**Ottawa.**

THE QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1959

69957-9-1



This Supplement has been compiled from information received in the Hydrographic Service since the publication in 1955 of the second edition of the St. Lawrence River Pilot. All information affecting this pilot, up to and including Notice to Mariners No. 2 of 1959 has been embodied in this supplement together with information affecting the St. Lawrence Seaway received by the Canadian Hydrographic Service to 31st March 1959.

Issued free of charge to purchasers of, or on request to those already possessing the parent volume.

Pilots, masters or others interested are earnestly requested to furnish information regarding newly discovered dangers, changes in aids to navigation, the existence of new shoals, or channels, errors in publications or other information that, it is considered, would be useful for the correction of Nautical Charts and Hydrographic Publications affecting Canadian waters addressed to:

DOMINION HYDROGRAPHER, CANADIAN HYDROGRAPHIC SERVICE,  
SURVEYS AND MAPPING BRANCH,  
DEPARTMENT OF MINES AND TECHNICAL SURVEYS,  
No. 8 TEMPORARY BUILDING,  
OTTAWA, CANADA.

## SUPPLEMENT No. 1 TO THE 1955 EDITION OF THE ST. LAWRENCE RIVER PILOT.

(Corrected to 5th January 1959).

New matter and alterations follow the order of paging of the St. Lawrence River Pilot. The pages referred to in this supplement are those of the same volume, except where specifically mentioned otherwise in the text.

**All bearings are true and are given from seaward, unless otherwise stated; where given in degrees they are reckoned clockwise from 000° (North) to 359°.**

**Page vi.**—Lines 6-17: *Delete and substitute*:—"For **Lake St. Louis**, soundings are reduced to a chart datum based on an elevation of 66.5 feet (20<sup>m</sup>2), at the Canadian Hydrographic Service gauge at Pointe Claire.

For **Lake St. Francis**, soundings are reduced to a chart datum based on an elevation of 151.0 feet (46<sup>m</sup>0), at the Canadian Hydrographic Service gauge at Coteau Landing.

For **Lake St. Lawrence**, soundings are reduced to a chart datum based on an elevation of 236.3 feet (72<sup>m</sup>0), at the U.S. Lake Survey gauge above the Eisenhower Lock, and on an elevation of 239.9 feet (73<sup>m</sup>2), at the Canadian Hydrographic Service gauge below the Iroquois Lock.

For the **St. Lawrence River** between **Iroquois Lock** and **Kingston**, soundings are reduced to a chart datum based on an elevation of 240.2 feet (73<sup>m</sup>3), at the Canadian Hydrographic Service gauge above the Iroquois Lock and to an elevation of 243.8 feet (74<sup>m</sup>3), at the Canadian Hydrographic Service gauge at Kingston.

*After line 36 add*:—"together with the Water Level Bulletins and Hydrographs, issued from time to time, by the above authority".

**Page xix.**—Lines 19-20: *Delete*.

**Page xx.**—Line 41: *For* "early in the spring of each year" *read* "twice annually".

Line 42: *Add*:—"and periodical supplements issued by the Department of Transport".



Insert Distance Table to follow page x.

DISTANCE TABLE IN NAUTICAL AND STATUTE MILES FROM MONTREAL, VICTORIA BRIDGE, TO CAPE VINCENT VIA U.S. CHANNEL

	Montreal Victoria Bridge	La Prairie Basin Canal Upper End-Cauch- nawaga Entrance	Beauharnois Canal—Lower End	Beauharnois Canal—Upper End	Wiley-Dondero Lower End (Snell Lock)	Wiley-Dondero Upper End (Eisenhower Lock)	Morrisburg	Iroquois Lock	Ogdensburg (or Prescott)	Brookville	Alexandria Bay	Thousand Island Park	Clayton
* Cape Vincent .....	159.2	144.9	134.9	121.4	89.0	85.7	70.7	63.7	52.1	41.7	23.2	17.7	14.0
.....Nautical Miles	183.9	167.4	155.9	140.4	103.1	99.3	82.0	73.4	60.0	48.0	26.7	20.4	16.1
.....Statute Miles													
Clayton.....	145.2	130.0	120.9	107.3	75.0	71.7	56.7	49.7	38.1	27.7	9.2	3.7	0
.....	167.8	151.3	139.8	124.3	87.0	83.2	65.9	57.3	43.9	31.9	10.6	4.3	0
Thousand Island Park.....	141.5	127.2	117.2	103.7	71.3	68.0	53.0	46.0	34.4	24.0	5.5	0	—
.....	163.5	147.0	135.5	120.0	82.7	78.9	61.6	53.0	39.6	27.6	6.3	0	—
Alexandria Bay.....	136.0	121.7	111.7	98.2	65.8	62.5	47.5	40.5	28.9	18.5	0	0	—
.....	157.2	140.7	129.2	113.7	76.4	72.6	55.3	46.7	33.3	21.3	0	0	—
Brookville.....	117.5	103.2	93.2	79.7	47.3	44.0	29.0	22.0	10.4	0	0	0	—
.....	135.9	119.4	107.9	92.4	55.1	51.3	34.0	25.4	12.0	0	0	0	—
Ogdensburg or Prescott.....	107.1	92.8	82.8	69.3	36.9	33.6	18.6	11.6	0	0	0	0	—
.....	123.9	107.4	95.9	80.4	43.1	39.3	22.0	13.4	0	0	0	0	—
Iroquois Lock.....	95.5	81.2	71.2	57.7	25.3	22.0	7.0	0	0	0	0	0	—
.....	110.5	94.0	82.5	67.0	29.7	25.9	8.6	0	0	0	0	0	—
Morrisburg.....	88.5	74.2	64.2	50.7	18.3	15.0	0	0	0	0	0	0	—
.....	101.9	85.4	73.9	58.4	21.1	17.3	0	0	0	0	0	0	—
Wiley-Dondero, Upper End (Exit Eisenhower Lock)	73.5	59.2	49.2	35.7	3.3	0	0	0	0	0	0	0	—
.....	84.6	68.1	56.6	41.1	3.8	0	0	0	0	0	0	0	—
Wiley-Dondero, Lower End (Entrance Snell Lock)	70.2	55.9	45.9	32.4	0	0	0	0	0	0	0	0	—
.....	80.8	64.3	52.8	37.3	0	0	0	0	0	0	0	0	—
Cornwall Landing.....	66.8	52.5	42.5	29.0	0	0	0	0	0	0	0	0	—
.....	76.9	60.4	48.9	33.4	0	0	0	0	0	0	0	0	—
Beauharnois Canal, Upper End.....	37.8	23.5	13.5	0	0	0	0	0	0	0	0	0	—
.....	43.5	27.0	15.5	0	0	0	0	0	0	0	0	0	—
Beauharnois Canal, Lower End.....	24.3	10.0	0	0	0	0	0	0	0	0	0	0	—
.....	28.0	11.5	0	0	0	0	0	0	0	0	0	0	—
La Prairie Basin Canal Caughnawaga Entrance.....	14.3	0	0	0	0	0	0	0	0	0	0	0	—
.....	16.5	0	0	0	0	0	0	0	0	0	0	0	—
Montreal Victoria Bridge.....	0	0	0	0	0	0	0	0	0	0	0	0	—
.....	0	0	0	0	0	0	0	0	0	0	0	0	—

Distance Table in Nautical and Statute Miles from  
Brookville to Kingston via Middle (Canadian)  
Channel.

	Brookville	Kingston	* Kingston	Hookport	Gananoque Narrows
Brookville.....	44.8	51.6	44.8	27.0	19.8
.....	51.6	58.4	51.6	31.1	22.8
Kingston.....	25.0	28.8	25.0	7.2	0
.....	28.8	32.6	28.8	8.3	0
Gananoque Narrows.....	17.8	20.5	17.8	0	0
.....	20.5	23.3	20.5	0	0
Hookport.....	0	0	0	0	0
.....	0	0	0	0	0

\* The distance from Cape Vincent to Kingston (passing westward of Wolfe Island) is 20.8 nautical or 24.0 statute miles.

Line 45: *For* "Fame Point" *read* "Trois-Rivières, Pointe Noire".

**Page xxi.**—Line 2: *For* "Fame Point" *read* "Trois-Rivières".

Line 4: *Delete* "Camperdown and".

Lines 5-6: *For* "Cape Race and St. Paul Island" *read* "and Cape Race."

**Page xxx.**—Lines 10-11: *For* "such as Lakes St. Francis" *read* "such as Lakes St. Lawrence, St. Francis".

Lines 12-13: *For* "14-foot (4<sup>m</sup>3) draught and 255 feet (77<sup>m</sup>7) length" *read* "25-foot (7<sup>m</sup>6) draught and 715 feet (218<sup>m</sup>0) length".

Lines 15-17: *Delete* "1,933" to "(2,255 statute miles)" and *substitute*:—"1,939 nautical miles (2,233 statute miles); the distance to Duluth is 2,045 nautical miles (2,355 statute miles); the distance to Chicago is 1,965 nautical miles (2,266 statute miles)".

**Page xxxi.**—Line 7: *For* "St. Lawrence River Pilot" *read* "St. Lawrence Pilot".

Lines 19-20: *For* "the Department of Public Works" *read* "the St. Lawrence Seaway Authority and the St. Lawrence Seaway Development Corporation".

Lines 21-26: *Delete* and *substitute*:—"With the completion of the St. Lawrence Seaway in 1959, vessels not exceeding 715 feet (218<sup>m</sup>0) in overall length, with a 72-foot (21<sup>m</sup>9) beam and drawing up to 25 feet (7<sup>m</sup>6) fresh water draught, are permitted unrestricted transit throughout the Seaway and Welland Canal systems to Lake Erie. Vessels not exceeding 730 feet (222<sup>m</sup>5) overall, with a beam of 75 feet (22<sup>m</sup>9), are accommodated on a restricted basis through the system.

**Note.**—From the opening of the 1959 navigation season, until approximately June 1st, 1959, the maximum draught of 25 feet (7<sup>m</sup>6) will not be available over certain sections of the Seaway. Available draughts will be announced from time to time by the St. Lawrence Seaway Authority. Dredging and shoal removal operations to provide the final channel width and depth will continue throughout 1959."

Lines 31-47: *Delete* "The portion" to "foreign countries" and *substitute*:—"The portion of the river above Montreal, extending from the entrance to the St. Lawrence Seaway, close below the Jacques Cartier bridge to Kingston Harbour on the Canadian shore, and Tibbetts Point on the United States shore, at the foot or east end



of Lake Ontario, has a total length of 162 nautical miles. Of this length there are 134 miles of natural river and open lake expansions and 28 miles of canals. The average width of the river is  $1\frac{1}{4}$  miles. The lake expansions are Lakes St. Louis, St. Francis and St. Lawrence. The former, reached from Montreal by the La Prairie Basin Canal, is 12 miles long, and has a greatest width of  $5\frac{1}{4}$  miles. Lake St. Francis is 27 miles long and has a maximum width of 4 miles; Lake St. Lawrence is 27 miles long and has a maximum width of 4 miles."

Lines 48-49: *Delete* "Between" to "Kingston" and *substitute*:—"From a position where the Seaway channel passes eastward of Cornwall Island, 77 statute miles above Montreal, and Kingston".

Line 52: *For* "25 feet" *read* "27 feet (8<sup>m</sup>2)"

**Page xxxii.**—Lines 1-36: *Delete* and *substitute*:—"St. Lawrence Seaway.—General Description.—The St. Lawrence Seaway route, between Montreal and Lake Superior, contains the following canals: Laprairie Basin Channel, Beauharnois Power Canal, Wiley-Dondero Canal, Welland Ship Canal and Sault Ste. Marie. The total lockage or difference of elevation directly overcome by locks, is 583 feet (177<sup>m</sup>7). The number of locks that a vessel would encounter during its passage from Montreal to the head of Lake Superior, is 16.

The following tables giving the dimensions of locks and bridges have been compiled from information supplied to the Canadian Hydrographic Service by the St. Lawrence Seaway Authority. Distances are expressed to the nearest even, statute mile, measured from the entrance to the Laprairie Basin Channel, about 500 yards (457<sup>m</sup>2) northeastward from the Jacques Cartier Bridge, to the downstream lock gate.

#### LOCKS

Lock	Distance	Normal Lift. Ft.	Length	Width	Lower Approach Wall	Upper Approach Wall
St. Lambert.....	2 miles	13-20	766 feet	80 feet	2,954 feet	2,268 feet
Côte Ste Catherine.....	10 "	33-35	766 "	80 "	1,603 "	1,590 "
Lower Beauharnois.....	30 "	38-42	766 "	80 "	2,124 "	1,012 "
Upper Beauharnois.....	45 "	36-40	766 "	80 "	1,023 "	2,265 "
Snell.....	83 "	45-49	766 "	80 "	1,586 "	1,638 "
Eisenhower.....	87 "	38-42	766 "	80 "	1,638 "	1,438 "
Iroquois.....	113 "	0.5-6.0	766 "	80 "	1,500 "	3,000 "

There is a minimum depth of 30 feet (9m1) over the sills of all locks.

## BRIDGES

Bridge	Type	Construction	Minimum clearance at High water level
Jacques Cartier.....	Road.....	High level fixed span.....	120 feet
St. Lambert Lock.....	Road and Railway.....	Vertical lift bridge.....	120 feet
St. Lambert.....	Road and Railway.....	Vertical lift bridge..... (Under construction 1959)	120 feet
Champlain Bridge.....	Road.....	(Under construction 1959).....	120 feet
Côte Ste. Catherine Lock.....	Road.....	Rolling lift bridge.....	120 feet
Honore Mercier.....	Road.....	High level fixed span.....	120 feet
C.P.R. Bridge Caughnawaga.....	Railway.....	Vertical lift bridge.....	120 feet
Melocheville.....	Railway.....	Swing bridge.....	
St. Louis Bridge.....	Road and Railway.....	Vertical lift bridge.....	120 feet
Valleyfield.....	Road and Railway.....	Vertical lift bridge.....	120 feet
Cornwall-Massena International Bridge.....	Road.....	High level suspension.....	120 feet
Iroquois Lock.....	Road.....	Rolling lift bridge.....	120 feet
Prescott-Ogdensburg.....	Road.....	(Under construction 1959).....	120 feet
Thousand Island Bridge.....	Road.....	High level suspension.....	120 feet

A road tunnel passes under the Lower Beauharnois Lock connecting Valleyfield to the south shore. A road tunnel passes under the Eisenhower Lock giving access to Barnhart Island and the Power Dam.

In the canal sections of the St. Lawrence Seaway, where the canal is flanked by two embankments, there is a minimum width of 200 feet (61<sup>m</sup>0) at the bottom and 225 feet (68<sup>m</sup>6) at the surface. Where the canal is flanked by one embankment, the minimum width at the bottom is 300 feet (91<sup>m</sup>4). In open water, the minimum width of the channel is 450 feet (137<sup>m</sup>2).

**Rules of the Road for the Great Lakes.**—Mariners are cautioned that the Rules of the Road for the Great Lakes are effective westward from Montreal. Copies of these rules are contained in the Department of Transport booklet entitled “Information concerning the River St. Lawrence Ship Channel”.

**Page xxxiv.**—*Delete.*

**Page xxxv.**—*Delete.*

**Page xxxvi.**—*Delete.*

**Page xxxvii.**—*Delete all above “MONTREAL, OTTAWA AND KINGSTON ROUTE”.*

**Index to Charts XIII,** facing page 1: *Delete* charts “1443, 1444, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457 and 1458”. *Insert* “Catalogue of St. Lawrence Seaway Charts, Montreal to Kingston” as supplementary index.



**Page 3.**—After line 17 insert:—“**Light.**—A light is exhibited, at an elevation of 155 feet (47<sup>m</sup>2), from an aluminum, skeleton tower surmounted by a red lantern, situated on St. Nicholas Point”.

**Page 4.**—Line 28: For “northern edge” read “northwestern edge”.

Lines 33, 36 and 42: For “fixed white” read “fixed green”.

**Page 5.**—After line 43 insert:—“An L-shaped wharf, 173 feet (52<sup>m</sup>7) long and 46 feet (14<sup>m</sup>0) wide, with a depth of 11 feet (3<sup>m</sup>4) alongside the outer face at H.W., extends from the northern shore at Les Ecureuils”.

**Page 6.**—Line 5: For “1½ miles” read “one mile”.

Line 6: For “7½ cables north-northwestward” read “11 cables west-southwestward”.

**Page 7.**—After line 11 insert:—“**Wharf.**—A T-shaped pier, over 5 cables in length and 274 feet (83<sup>m</sup>5) wide, with depths of 35 to 39 feet (10<sup>m</sup>7 to 11<sup>m</sup>9) alongside the outer face, extends in a southeasterly direction from shore, close westward of the Portneuf River entrance”.

**Page 9.**—Lines 10-11: Delete “A red light-buoy” to end of sentence and substitute:—“Two red light-buoys, 56Q and 58Q, showing flashing red lights, mark the northwestern limit of the channel westward of Richelieu Island”.

**Page 10.**—Line 14: For “238°” read “238½°”.

**Page 11.**—Lines 42 and 47: For “fixed white” read “fixed green”.

**Page 14.**—Lines 6-16: Delete and substitute:—“The Batiscan Curve is marked by four black light-buoys, Nos. 115Q, 117Q, 119Q, and 13Q, moored at half-mile intervals along the eastern limit of the curved channel. The above black light-buoys show flashing white lights. A red conical buoy, 116Q, marks the northern limit of the channel, abreast No. 115Q, and a red conical light-buoy, 120Q, showing a flashing red light, marks the western limit of the channel, abreast No. 119Q”.

Lines 17-19: Delete “Red spar buoy” to end of sentence.

Lines 37-39: Delete “The north and south” to end of sentence and substitute:—“The southern entrance point to the anchorage is marked by a red spar buoy, 128Q, and the western limit of the area by three red spar buoys, 122Q, 124Q, and 126Q”.



**Page 15.**—Lines 26-28: *Delete and substitute:*—“**Light-buoy.**—A red light-buoy, 132Q, showing a *flashing red* light, marks the southeastern limit of Batture Perron”.

**Page 16.**—Line 29: *For* “(See page..)” *read* “(See page 17)”

**Page 17.**—Line 2: *For* “white” *read* “green”.

Line 31: *For* “fixed white” *read* “fixed green”.

**Page 19.**—After line 20 *insert:*—“**Taureau Shoal**, with a depth of 18 feet (5<sup>m</sup>5), lies a quarter of a mile southeastward of Cap-de-la-Madeleine Village Range front light. A red spar buoy, 46C, marks the southeastern limit of the shoal”.

Line 28: *For* “2.2 miles” *read* “1.2 miles”.

After line 33 *insert:*—“**Submarine cables.**—Submarine cables are laid within an area extending 100 yards (91<sup>m</sup>4) on either side of the road bridge crossing from Trois Rivières to Ile St. Christophe”.

Line 43: *For* “the point” *read* “Pointe des Chenaux”.

**Page 20.**—Lines 12-13: *For* “2 $\frac{3}{4}$  cables southwestward of buoy, 50C”. *read* “abreast 52C”.

After line 33 *add:*—“A *flashing white* light is exhibited, at an elevation of 61 feet (18<sup>m</sup>6), from the above front light structure”.

**Page 26.**—After line 13 *insert:*—“**Pilotage.**—Pilots are exchanged abreast **Pointe des Ormes**, situated on the north bank of the river, southwestward of Trois Rivières”.

After line 42 *insert:*—“Two red spar buoys and two red light-buoys, 62C and 64C, showing *flashing red* lights, mark the northern limit of the channel between Rivière Ste. Marguerite and Ste. Angèle range lights”.

**Page 27.**—Lines 5-11: *Delete* “The rear light” to end of paragraph and *substitute:*—“The rear light is exhibited, at an elevation of 54 feet (16<sup>m</sup>5), from a red skeleton tower, 4,507 feet (1373<sup>m</sup>7), 068°, from the front light. The *fixed green* lights, in line bearing 068°, lead in mid-channel clear of Batture au Fer and Poulier Laforce”.

**Page 28.**—Line 4: *Delete* “and a red spar buoy, 8L” and *substitute:*—“A red light-buoy, 8L, showing a *flashing red* light, marks the northern limit of the channel about 4 cables upstream from the above red conical buoy”.

Lines 41-42: *Delete* “Abreast the light-buoy” to end of sentence.

Lines 45-46: *Delete* “Midway between” to “spar buoy 15L, and”.

**Page 31.**—Line 40: *For* “fixed white” *read* “fixed green”.

**Page 32.**—Line 9: After “117L” insert:—“showing a flashing white light”.

Line 24: For “fixed white” read “fixed green”.

**Page 33.**—Lines 14 and 31: For “fixed white” read “fixed green”.

**Page 34.**—Line 35: Delete “587 feet” to end of line and substitute:—“628 feet (191<sup>m</sup>4). The depths alongside are from 27 to 32 feet (8<sup>m</sup>2 to 9<sup>m</sup>8).”

**Page 35.**—Lines 21-22: Delete “and a fixed red light” to end of sentence.

**Page 36.**—Line 24: For “244°” read “248°”.

Line 26: For “red spar buoy” read “red light-buoy”.

Line 30: Delete “northward of black spar buoy 15L”.

Line 48: For “northwest” read “southward”.

**Page 37.**—Line 5: For “224 $\frac{3}{4}$ °” read “224°”.

Line 24: For “235 $\frac{1}{4}$ °” read “232°”. Delete “them so”.

**Page 39.**—Line 15: For “7 feet (2<sup>m</sup>1)” read “9 feet (2<sup>m</sup>7)”.

Lines 26 and 34: For “fixed white” read “fixed green”.

Line 37: For “seventeen” read “twenty-two”.

Line 38: For “ten” read “fourteen”. For “eight” read “ten”.

Lines 42-43: Delete “Cardinal Traverse” to end of sentence.

**Page 40.**—Lines 17, 21, 30 and 47: For “fixed white” read “fixed green”.

**Page 41.**—Lines 21, 27 and 31: For “fixed white” read “fixed green”.

**Page 42.**—Line 37: For “fixed white” read “fixed green”.

**Page 43.**—Line 3: After “bridge” add:—“(See below)”.

**Page 44.**—Line 42: For “Chambly Canton” read “Fort Chambly”.

**Page 45.**—Lines 3, 24 and 43: For “Chambly Canton read “Fort Chambly”.

Line 8: For “power-house” read “disused power-house”.

Lines 22-23: Delete.

**Page 47.**—Line 21: For “fixed white” read “fixed green”.

**Page 48.**—Line 4: For “fixed white” read “fixed green”.

**Page 49.**—Lines 9, 30 and 44: For “fixed white” read “fixed green”.

**Page 52.**—Lines 43-44: Delete and substitute:—“**Buoy.**—A black spar buoy marks the easterly side of the southern entrance to Chenal du Nord”.

**Page 53.**—Lines 2-26: Delete.

**Page 55.**—Line 18: For “16 feet (4<sup>m</sup>9)” read “15 feet (4<sup>m</sup>6)”.

**Page 57.**—After line 11 insert:—“The Iron Ore Transfer Dock, 750 feet (228<sup>m</sup>6) long, with three mooring dolphins situated in line with the wharf face, provides a berth 1,000 feet (304<sup>m</sup>8) in length, with a depth of 35 feet (10<sup>m</sup>7) alongside. An additional berth, 590 feet (179<sup>m</sup>8) in length, with a depth of 17 feet (5<sup>m</sup>2) alongside, extends in a southwesterly direction from the western end of the main berth. A channel, dredged to 35 feet (10<sup>m</sup>7) in 1955, leads from westward of black light-buoy, 57M, on the line of the above leading lights to the main berth.

An area, bounded on the northwest by black light-buoys, 57M and 77M, and on the southeast by the Ore Transfer Dock, was dredged in 1956, to a least depth of 25 feet (7<sup>m</sup>6)”.

Line 19: For “fixed white” read “fixed green”.

**Page 58.**—Line 32: For “fixed white” read “fixed green”.

**Page 59.**—After line 32 insert:—“A channel, 100 feet (30<sup>m</sup>5) wide, leads from the main channel to the village wharf. An area before the wharf, 200 feet (61<sup>m</sup>0) long and 95 feet (29<sup>m</sup>0) wide, has been dredged to a depth of 6 feet (1<sup>m</sup>8)”.

**Page 60.**—After line 44 insert:—“**Submarine cable.**—From a position one cable northeastward of St. Sulpice front light, a submarine cable is laid in an east-southeasterly direction to Ile Ronde”.

**Page 61.**—Line 23: For “fixed white” read “fixed green”.

**Page 62.**—Line 34: For “Two” read “Three”.

**Page 63.**—Line 15: For “12 feet (3<sup>m</sup>7)” read “10 feet (3<sup>m</sup>0)”.

**Page 64.**—Line 18: For “fixed white” read “fixed green”.

**Page 65.**—Lines 4-5: Delete “red and black conical buoy” to end of sentence.



**Page 66.**—Line 20: *For* “A channel has been dredged” *read* “A buoyed channel has been dredged to a depth of 6 feet (1<sup>m</sup>8)”.

Lines 48-49: *Delete* to end of sentence and *substitute*:— “four piers known as Sutherland, Tarte, Marine Tower and Laurier, the depths at which are, respectively, 32½, 30, 32½ and 30 to 32½ feet (9<sup>m</sup>9, 9<sup>m</sup>1, 9<sup>m</sup>9 and 9<sup>m</sup>1 to 9<sup>m</sup>9)”.

**Page 67.**—Line 3: *For* “1,450 feet (442<sup>m</sup>0)” *read* “4,000 feet (1,219<sup>m</sup>2)”.

Line 9: *For* “four black spar buoys” *read* “three black spar buoys”.

Lines 9-10: *Delete* “and 183R” to end of sentence.

Lines 12-14: *Delete* “Two additional” to end of sentence.

Lines 28-29: *For* “with a navigable 28-foot (8<sup>m</sup>5) dredged channel” *read* “A channel 300 feet (91<sup>m</sup>4) wide and 30 feet (9<sup>m</sup>1) deep is being dredged (1959)”.

Line 30: *After* “above described” *insert*:— “The channel is closed to shipping whilst dredging is in progress”.

Line 35: *For* “1,000 feet (304<sup>m</sup>8)” *read* “400 feet (121<sup>m</sup>9)”.

Lines 38-39: *For* “In 1951, the city had a population of 1,021,520” *read* “In 1956, the city had a population of 1,109,439”.

Lines 43-44: *Delete* “and the head of ocean navigation”.

Line 49: *For* “14 feet (4<sup>m</sup>3)” *read* “25 feet (7<sup>m</sup>6), *see* page xxxi”.

Line 50: *For* “1,161 nautical” *read* “1,167 nautical”.

**Page 69.**—Lines 20-21: *For* “32½ feet (9<sup>m</sup>9)” *read* “35 feet (10<sup>m</sup>7)”.

Line 23: *For* “32½ feet (9<sup>m</sup>9)” *read* “35 feet (10<sup>m</sup>7)”.

Line 25: *For* “of 29 feet (8<sup>m</sup>8)” *read* “the north side of 29 feet (8<sup>m</sup>8) and 35 feet (10<sup>m</sup>7) along the outer face and the south side”.

Line 29: *For* “29 feet (8<sup>m</sup>8)” *read* “35 feet (10<sup>m</sup>7) on the outer face and 29 feet (8<sup>m</sup>8) within No. 3 Basin”.

**Page 70.**—*After* line 5 *insert*:— “In 1958, berths alongside the above wharves were being dredged to 35 feet (10<sup>m</sup>7)”.

**Page 72.**—Lines 17-18: *Delete* “The edge” to end of sentence and *substitute*:— “The western limit of the 35-foot (10<sup>m</sup>7) Ship Channel is marked by three black light-buoys, 187M, 187½M and 193M, showing *flashing white* lights. The eastern limit of Forsyth Shoal, being dredged to 35 feet (10<sup>m</sup>7), (1959), is marked by red conical buoys 186M and 188M”.

Line 25: *After* “5 feet (1<sup>m</sup>5)” *insert*:— “a black spar buoy marks the eastern limit of the channel midway between black light-buoys 193M and 195M”.

**Page 75.**—Line 3: *Delete and substitute:—"Chart 1540".*

**Page 76.**—Line 1: *Delete and substitute:—"Chart 1540".*

**Page 77.**—Line 1: *Delete and substitute:—"Chart 1540".*

Line 17: *After "White Horse Rapids" insert:—"A black light-buoy, showing a flashing white light, is moored at the foot of the White Horse Rapids".*

Line 32: *For "Sixteen spar buoys, 14 red and 2 black" read "Fourteen spar buoys, twelve red and two black, and two red light-buoys, showing flashing red lights".*

Line 38: *For "fixed white" read "fixed green".*

**Page 78.**—Line 1: *Delete and substitute:—"Chart 1540".*

Lines 18-19: *Delete "On the outer" to "and is" and substitute:—"A fixed green light is exhibited, at an elevation of 26 feet (7<sup>m</sup>9), from the outer end of Oka wharf".*

**Page 79.**—Line 1: *Delete and substitute:—"Chart 1540".*

Line 45: *For "fixed white" read "fixed green".*

**Page 80.**—Line 1: *Delete and substitute:—"Chart 1540".*

Line 2: *For "another fixed white" read "a fixed green".*

**Page 81.**—Line 1: *Delete and substitute:—"Chart 1540".*

Line 22: *For "fixed white" read "fixed green".*

**Page 82.**—Lines 2 and 10: *For "Fixed white" read "Fixed green".*

Line 42: *For "fixed red" read "fixed green".*

**Page 83.**—Lines 30 and 50: *For "fixed white" read "fixed green".*

**Page 85.**—After line 19 *add:—"Both lights are fixed green".*

Line 31: *For "flashing white" read "flashing green".*

Line 35: *After "alongside" insert:—"In 1957, the wharf was reported in ruins".*

**Page 86.**—Lines 24, 30 and 36-37: *For "fixed white" read "fixed green".*

**Page 87.**—Line 8: *For "fixed white" read "fixed green".*

Line 21: *For "In 1951, the population was 5,765" read "In 1956, the population was 8,423".*

Line 46: *For "It had a population of 202,045 in 1951" read "It had a population of 222,129 in 1956".*

**Page 88.**—Line 7: *For* "in 1951, a population of 43,483" *read* "in 1956, a population of 49,243".

*Insert facing page 88:*—**St. Lawrence Seaway:**—The following description of the St. Lawrence Seaway route from Montreal to Lake Ontario should be used in conjunction with charts 1340, 1409 to 1420 and 1477 until such time as Chapters VI to VIII of the St. Lawrence River Pilot, Quebec Harbour to Kingston Harbour, have been revised. Masters should exercise caution when referring to the existing Pilot, and if in doubt as to the authenticity of a statement, should always accept the information contained on the chart as being correct. In order that the description of the St. Lawrence Seaway be kept as brief as possible, certain information already contained in the St. Lawrence River Pilot, Quebec Harbour to Kingston, has been omitted. For this reason the existing pilot must be read in conjunction with the following description. Unless otherwise stated in the text, distances are expressed in statute or land miles, *see* page V.

## MONTREAL TO CORNWALL

### St. Lawrence Seaway

**History:**—The first recorded navigational improvement on the St. Lawrence Waterway dates back to 1700, when a 1½-foot canal was constructed at the Little River St. Pierre near Lachine. Other short, side canals having a depth of 2 to 3 feet, were built to by-pass the many falls and rapids and were used by, among other craft, the freight-carrying canots de maître of the fur trading companies.

Early in the nineteenth century, the first canals and locks were constructed between Montreal and Kingston, and by the middle of the century a 9-foot canal system was complete. This system consisted of the Lachine Canal, which gave access from Montreal to Lake St. Louis, the Beauharnois Canal, linking Lake St. Louis with

Lake St. Francis on the south shore, and the Cornwall, Farran's Point, Rapide Plat and Galop Canals that by-passed the International Rapids section of the St. Lawrence. The forerunner to the Welland Ship Canal by-passing Niagara Falls and containing no less than 26 locks, was also built during this period.

In 1910, the last of a new and larger series of canals designed to handle 255-foot ships drawing up to 14 feet, between Montreal and Lake Erie, was completed. The Beauharnois Canal was replaced by the Soulanges Canal, extending from the north shore of Lake St. Louis to Lake St. Francis during this phase of reconstruction.

In 1932, the Welland Ship Canal, containing 8 locks in place of the 26 in the former 14-foot canal was completed, and provided a deep water route (limiting depth 25 feet) capable of handling the 715-foot lake vessels which ply between Prescott on the Upper St. Lawrence, and Duluth at the western extremity of Lake Superior.



**The St. Lawrence Seaway Project.**—The St. Lawrence Seaway Project was designed to eliminate the 14-foot navigational bottleneck existing between Montreal and Prescott and to harness the power potential of the International Rapids section of the St. Lawrence River by the construction of power and control dams that would convert the International Rapids section into an artificial lake about 30 miles in length, extending from Cornwall to Iroquois. The Hydro-electric power project, a joint undertaking of the Ontario Hydro-electric Commission and the Power Authority of the State of New York, has entailed the relocation of four towns from the area now known as Lake St. Lawrence, the building of dams, control dykes, and the relocation of railways and roads at an estimated cost of \$600 million. The 32 generators contained in the power dam extending from Cornwall to Barnhart Island develop a total of 2,200,000 horse power.

The St. Lawrence Seaway Project has been built jointly by the St. Lawrence Seaway Authority (Canada), a Crown Corporation, and the St. Lawrence Seaway Development Corporation (U.S.). The St. Lawrence Seaway Development Corporation undertook to build a canal and two locks in the International Rapids section, and to dredge the channel throughout the Thousand Islands section of the St. Lawrence. The St. Lawrence Seaway Authority undertook the construction of two locks and a canal to by-pass the Lachine Rapids, two locks at Beauharnois and extensive dredging in Lake St. Louis and Lake St. Francis, together with a lock and canal at Iroquois in the International Rapids section of the St. Lawrence. Improvements in the Welland Canal were also carried out by the St. Lawrence Seaway Authority.

The cost of this project has been estimated at \$451 million, of which Canada will pay \$329 million, and the United States \$122 million.

**General.**—The St. Lawrence Seaway, designed to allow ocean-going vessels access to the industrial heart of the North American continent, will be completed by the opening of the 1959 shipping season, subject to certain dredging operations designed to widen and straighten portions of the channel.

On the completion of dredging to the controlled depth of 27 feet, vessels of up to the following maximum dimensions will be permitted to transit the Seaway route between Montreal and Lake Erie:—

Length	715 feet	(On Restricted Basis	730 feet)
Beam	72 feet	( " " "	75 feet)
Draught	25 feet,	which is 2 feet less than minimum	channel depths

**Note.**—It is anticipated that the minimum controlled depth in the Seaway Channel will be 24½ feet (draught 22½ feet) from the commencement of the 1959 shipping season until about June 1959 when, on completion of dredging in certain areas, the minimum controlled depth will be increased by the St. Lawrence Seaway Authority

to 27 feet. Information concerning the maximum permissible draught will be advertised periodically in Notices to Mariners by the St. Lawrence Seaway Authorities.

**Locks, Bridges and Channel data.**—For dimensions and clearance of locks, bridges and channels, *see* page xxxii.

With the exception of the Iroquois Lock, where water is admitted or released by partially opening the upper or lower lock gate, all locks are filled and emptied through sluices at the bottom of the lock. The operation is swift and there is little turbulence.

The cement walls of the locks are sheer and the lock gates when opened fit flush into the lock walls. The cement approach walls to the locks are generally low, varying in height from 4 to 10 feet (1<sup>m</sup>2 to 3<sup>m</sup>0), and with the exception of the Snell and Eisenhower Locks, which are fitted with wooden rubbing strakes, are unprotected by fenders or catamarans.

**Currents.**—Between Montreal and Kingston, the rate of the current varies directly with the width of the river channel. In the canals the rate is generally slight, with the exception of the Beauharnois Canal, where the rate although moderate, will vary with the volume of water used at the power dam. In lakes and open reaches, currents vary between a half and 1 knot, and in the narrower sections of the river between 2 and 3½ knots. The swiftest currents are to be found in the South Channel between Cornwall Island and the United States shore, where a current of up to 4½ knots may be encountered. The velocity of the currents will be reduced gradually as dredging in this area progresses. The currents in general, set fair with the channel. Dependent on the number and position of sluice gates open on the Iroquois control dam, the currents in the eastward approaches to the Iroquois Lock may, under certain conditions, set across the channel.

**Pilotage.**—Pilotage through the St. Lawrence Seaway is optional. Pilots may be obtained at either Montreal or Kingston.

**Seaway regulations.**—Copies of the Seaway regulations and circulars are to be carried aboard all vessels transiting the Seaway system. Copies are obtainable from the St. Lawrence Seaway Authority, or lockmasters, upon request.

The following extracts of Seaway Regulations and circulars are reprinted as a guide to mariners intending to transit the St. Lawrence Seaway system, but are in no way intended as a substitute for the copies of the regulations required to be carried by vessels transiting the system.

## Short Title

1. These Regulations may be cited as the "Seaway Regulations".

## Interpretation

2. In these Regulations:

- (a) "Act" means the St. Lawrence Seaway Authority Act, Chapter 242, R.S.C. 1952;
- (b) "master" means the person in charge of a vessel;
- (c) "navigation season" means the prescribed period of navigation on the Seaway or any portion thereof;
- (d) "passing through" means going through or using a lock;
- (e) "pleasure craft" means a vessel however propelled, the overall length of which does not exceed forty feet, that is used exclusively for pleasure and does not carry persons who have paid a fare for passage;
- (f) "prescribed" means prescribed by the Authority and published in a Circular;
- (g) "representative" means the person representing a vessel;
- (h) "Seaway" means every portion of the deep waterway that is under the jurisdiction of the Authority, between the Port of Montreal and Lake Erie, and includes also, works, the management and administration of which have been entrusted to the Authority pursuant to Section 14 of the Act;
- (i) "station" means a radio station installed at a prescribed point;
- (j) "transit" means to use the Seaway in whole or in part, and whether upbound or downbound;
- (k) "vessel" means every type of craft used as a means of transportation on water, and

other terms and expressions in these Regulations have the meaning ascribed to them in the Act.

## General Conditions

3. (1) Subject to other conditions that may be prescribed, vessels not exceeding 715 feet in overall length and 72 feet in beam, may transit during the navigation season.
- (2) Vessels that exceed 715 feet in overall length or 72 feet in beam but do not exceed 730 feet in overall length and 75 feet in beam may transit during the navigation season, under special instructions from the Authority.
- (3) By the sole fact of using the Seaway, masters and owners of vessels bind themselves and undertake to abide by these



Regulations with which they acknowledge being well acquainted and to comply with any instructions that may be given pursuant to these Regulations.

- (4) Under all circumstances, the master remains responsible for the safe control of his vessel and has the burden of proving compliance with these Regulations or with instructions given in accordance with these Regulations.

### **Circulars**

4. The Authority shall issue Circulars for the purpose of prescribing all matters that will ensure proper administration and management of its works and property including the regulation and control of vessels.

### **Pre-Clearance of Vessels**

5. Before a vessel may transit, it shall be pre-cleared by the representative with the Authority, in the manner prescribed.
6. A pre-clearance shall remain in effect until the representative is changed or there is a change with respect to the vessel that would modify one or more of the particulars given at the time of the pre-clearance; in either event, the vessel shall be pre-cleared again before its next transit.
7. The representative shall, when he applies for pre-clearance, guarantee in such manner as may be required by the Authority, payment of all monies that may become due by the vessel, in accordance with law.
8. The Authority assumes no special liability or responsibility when allowing transit or making charges for a transit.
9. A copy of these Regulations shall be kept on board every transiting vessel.

### **Condition of Vessels for Transit**

10. All transiting vessels shall be properly trimmed and in a safe and satisfactory condition.
11. Every transiting vessel shall be provided with all such apparatus, equipment or machinery, and the same shall be installed or used, as may be prescribed.
12. The Authority may deny a vessel transit, when, in its opinion, the vessel, its cargo, equipment or machinery is in any respect in such a condition as to prevent safe or expeditious transiting or when the vessel is manned with a crew that it deems to be insufficient or incompetent.

13. For the purpose of enforcing these Regulations, the Authority may, by any means deemed convenient including going on board, examine any vessel or its cargo or inspect the crew.

### **Navigation on the Seaway**

14. (1) Subject to these Regulations, the Rules of the Road for the Great Lakes and the Collision Regulations or other similar regulations established under the Canada Shipping Act shall apply to any vessel transiting the Seaway.
- (2) No vessel shall exceed the prescribed speeds.
- (3) The Authority assumes no liability in providing aids to or things to assist navigation.

### **Notice of Arrival**

15. (1) All vessels shall, upon reaching a prescribed calling-in point, give notice of arrival in the manner prescribed.
- (2) Notice of arrival shall have been given when it has been acknowledged by the station.
- (3) Every vessel shall be on listening-in watch as prescribed.
- (4) The master shall comply with all instructions given from a station in connection with transit.
- (5) The relative order of passing through shall be determined by the Authority.

### **Dangerous Cargo**

19. (1) The representative shall warrant in the manner prescribed that dangerous cargo, that is, all cargo so prescribed or deemed to be dangerous in the relevant regulations established under the Canada Shipping Act, is properly loaded, stowed, handled and disclosed, as the case may be, in accordance with the said regulations established under the Canada Shipping Act, and as prescribed.
- (2) A vessel carrying such dangerous cargo shall transit only in the manner prescribed.
20. The master of a vessel carrying dangerous cargo shall disclose this fact to the station when giving notice of arrival.

### **General Provision**

28. These Regulations shall not be construed as affecting by implication the application of regulations or rules made under any other Acts and, except where such rules and regulations would nullify these Regulations, they shall remain in full force and effect.

## *Circular No. 1*

### GENERAL CONDITIONS AND CIRCULARS

(Pursuant to Section 4 of the Seaway Regulations)

- 1-1 Under the provisions of Section 4 of the Seaway Regulations, the Authority issues Circulars which will set out matters and procedure prescribed by the Regulations, and any other matters which may be required to ensure the proper administration and management of the Seaway, including the control of vessels.
- 1-2 Each Circular deals with a particular subject usually grouped in sequence according to the Regulations. The numbers allocated to the Circulars are consecutive and will remain constant in relation to the subject. Changes will be made to Circulars by issuing revised pages to replace those amended.
- 1-3 Circulars will be distributed to and through the representatives of vessels.
- 1-4 In addition to the Circulars, the Authority will issue Seaway Notices to Mariners. These Notices will contain information related to navigation. These Notices may be issued by designated Officers of the Authority.
- 1-5 A copy of all Circulars shall be kept on board each vessel transiting the Seaway.
- 1-6 In these Circulars:—
- (a) "authority" means the St. Lawrence Seaway Authority or any officer of the Authority authorized to act on behalf of the Authority.
  - (b) "canal" means any canal under the jurisdiction of the Seaway Authority and includes:—
    - South Shore Canal—Montreal Harbour to Lake St. Louis.
    - Beauharnois Canal—Lake St. Louis to Lake St. Francis.
    - Iroquois Canal—From Lake St. Lawrence to river above Iroquois Control Dam.
    - Welland Ship Canal—Lake Ontario to Lake Erie.
    - Sault Ste. Marie—St. Mary Rapids at Sault Ste. Marie.
    - Lachine Canal—Montreal to Lachine.
    - Cornwall Canal—Cornwall to Barnhart Power House.
  - (c) "despatcher" means the person actually on duty operating a Seaway radio-telephone station for controlling vessel traffic, and
  - (d) "satisfactory" means satisfactory to the Authority.



**Circular No. 3****CONDITIONS OF VESSELS FOR TRANSIT**

(Pursuant to Sections 10 to 13 of the Seaway Regulations)

**Radio-Telephone Equipment**

- 3-1 It is recommended that vessels be equipped with V.H.F. (very high frequency) in addition to the required M.F. (medium frequency) radio-telephone equipment. The radio transmitter should have sufficient power output to enable the vessel to contact the Authority radio stations from a distance of 25 miles. The M.F. radio-telephone should be fitted to communicate on 2182 Kcs and 2003 Kcs. The V. H. F. should be fitted to communicate on 156.6, 156.7 and 156.8 Mcs.

**Mooring Lines and Winches**

- 3-2 Vessels of two hundred registered gross tons or less shall be provided with at least two good and sufficient lines or hawsers, one at the bow and one at the quarter.
- 3-3 Vessels of more than two hundred registered gross tons shall be provided with at least four good and sufficient lines or hawsers. These lines shall be positioned with two leading aft and two leading ahead, and so arranged that four lines may be used on either side of the vessel. On self-propelled vessels during the navigation season of 1959 the windlass forward and the capstan aft may be used to handle the two lines leading ahead, but the two lines leading aft must be led from the main drums of separate winches and not from capstans or nigger heads. Each line shall be provided with a handhold loop spliced thereto at the end of the eye that is thrown over the snubbing post. Each line must be attended by one of the vessel's crew during the whole period that the vessel is in any lock.
- 3-4 Cargo winches of vessels of more than two hundred registered gross tons shall not be used for the handling of mooring lines unless—
- (a) each mooring line passes through no more than two fairleads between the winch or capstan and the fairlead in the vessel's side, and
  - (b) such fairleads are fixed in place and provided with free sheaves so that the mooring line may be led to either side of the vessel as required.
- 3-5 During the navigation season of 1959 four closed chocks on each side of the vessel will be accepted for the handling of mooring lines but satisfactory fairleads, equivalent to the Port Colborne fairleads, are recommended.

- 3-6 Vessels of more than two hundred registered gross tons that are not equipped with a mooring line compressor located at or near the bow of the vessel, will require permission of the Canal Superintendent prior to entering the Lachine or Cornwall Canals.

### **Fenders**

- 3-7 All fenders on vessels shall either be made of such materials as will float or shall be securely fastened to the vessel by means of a steel cable or by means of two manilla ropes. Automobile or truck tires are not to be used as fenders.
- 3-8 Vessels carrying dangerous cargo must be equipped with a sufficient number of fenders to prevent any metallic portion of the vessel from touching the side of the dock or lock wall.
- 3-9 Fenders or other devices will also be required where any structural part of a vessel protrudes to such an extent that it may damage Seaway property.

### **Discharge Pipes**

- 3-10 The discharge of circulating water or any other substance onto the lock wall is prohibited.

### **Draught Markings**

- 3-11 Vessels drawing five feet or over shall be correctly and distinctly marked at the bow and stern to show exact draught fore and aft.
- 3-12 The master of any vessel shall, if required, produce satisfactory evidence that the draught markings are correct.
- 3-13 Vessels shall not enter any lock or reach of the Lachine, Cornwall or Sault Ste. Marie Canals unless the depth of water on the controlling point for draught exceeds by at least three inches, or such other clearance as may be determined by the Authority, the maximum draught of the vessel at the time.
- 3-14 Vessels shall not enter or proceed in any part of the Seaway drawing more than the maximum draught provided for in the Seaway Notices to Mariners.

### **Masts**

- 3-15 Vessels whose masts extend more than one hundred and seventeen feet above water level will not be permitted to transit the Seaway.
- 3-16 Vessels whose masts extend ninety-four feet or more above water level will not be permitted to transit between Locks 2 and 3 of the Lachine Canal.

- 3-17 Vessels whose masts extend more than one hundred and ten feet above water level must not transit the Seaway, and vessels whose masts extend more than ninety feet must not transit the Lachine Canal, until the master has furnished the officer in charge with precise information concerning the height of such vessel's masts with respect to the water level.

### **Recommended Equipment**

- 3-18 While vessels are not required to carry stern anchors and "visible and audible wrong-way propeller direction alarm systems", this equipment is strongly recommended for vessels exceeding two hundred and sixty feet in overall length transiting the Seaway.
- 3-19 Landing booms or other adequate provisions for landing men from vessels are also recommended.
- 3-20 Satisfactory fairleads, equivalent to the Port Colborne fairleads, are strongly recommended.

## ***Circular No. 4***

### **NOTICE OF ARRIVAL AND RADIO COMMUNICATION**

(Pursuant to Section 15 of the Seaway Regulations)

#### **Radio-telephone Frequencies**

- 4-1 The Seaway radio-telephone stations are equipped to operate on the following assigned frequencies:
- 2182 Kcs. Safety and Calling
  - 2003 Kcs. Working
  - 156.8 Mcs. Safety and Calling
  - 156.7 Mcs. Working (Canadian stations only)
  - 156.6 Mcs. Working (Eisenhower station only)

#### **Radio-telephone Stations**

- 4-2 The Seaway radio-telephone stations are located as follows:
- (a) On the Upper Beauharnois Lock—Beauharnois Canal, VAO
  - (b) Eisenhower Lock, KEF
  - (c) Iroquois Lock, CZ6K
  - (d) At the Guard Gate—Welland Canal, VBX
  - (e) On the lock, Sault Ste. Marie Canal (Canadian), VDX



- 4-3 With the exception of the Sault Ste. Marie Canal (Canadian) all vessels intending to enter or transit the Seaway in whole or in part must report to the nearest vessel despatcher when opposite the calling in point of the respective control area, giving the following information:

Name of vessel

Pre-clearance number

Position of vessel

Draught (relative sailing draught)

Destination: i—if canal port, state place and dock, or  
ii—if through passage, state place of destination.

Nature of cargo if dangerous

When reporting in, the preferred calling frequency is 156.8 Mcs.

### Calling in Points

- 4-4 The Seaway calling in points are located as follows:

		<i>Despatch Area</i>	<i>Call Sign</i>
	<i>Upbound</i>		
No. 1	Town of Varennes—approximately 12 miles downstream from Jacques Cartier Bridge .....		VAO
No. 2	North end of the west Seaway dyke—one-quarter mile downstream from the Jacques Cartier Bridge (Lockage turn established here) .....	No. 1	VAO
No. 3	Windmill Point—Buoy No. 38A—Lake St. Louis (Lockage turn established here) .....	No. 1	VAO
No. 7	Hamilton Island Light No. 102F—Lake St. Louis .....	No. 2	KEF
No. 8	Raquette River Range—Buoy No. 139F—Lake St. Francis (Lockage turn established here) .....	No. 2	KEF
No. 11	MacDonald Point—Buoy No. 78—Lake St. Lawrence .....	No. 3	CZ6K
No. 12	Robertson's Point—Buoy No. 98—Lake St. Lawrence (Lockage turn established here) .....	No. 3	CZ6K
No. 15	Three miles off the entrance piers—Port Weller—Lake Ontario (Lockage turn established here) .....	No. 4	VBK

*Downbound*

No. 16 Three Mile Fairway Buoy—off Port Colborne Harbour—Lake Erie (Lockage turn established here) .....	No. 4	VBK
No. 14 Maitland—Fairway Buoy—St. Lawrence River .....	No. 3	CZ6K
No. 13 Sparrowhawk Point—Light No. 155—St. Lawrence River (Lockage turn established here) .....	No. 3	CZ6K
No. 10 Bradford Island—Light No. 71—Lake St. Lawrence .....	No. 2	KEF
No. 9 Richards Point—Light No. 55—Lake St. Lawrence (Lockage turn established here) .....	No. 2	KEF
No. 6 Point Mouillée—Pier Light No. 63F Lake St. Francis .....	No. 1	VAO
No. 5 Entrance to Beauharnois Canal—Buoy No. 5B—Lake St. Francis (Lockage turn established here) .....	No. 1	VAO
No. 4 Lower Beauharnois Lock—When leaving .....	No. 1	VAO
No. 2 North end of the west Seaway dyke—one-quarter mile downstream from the Jacques Cartier Bridge (Downbound vessels leave the Seaway control and go to Montreal Harbour control) .....	No. 1	VAO

4-5 All vessels intending to enter the Canadian Sault Ste. Marie Canal will be directed to the canal by arrangements with the lockmaster at the United States St. Mary's Falls Canal—normally by means of visual signals. The radio marine transmitter-receiver set at the Canadian Sault Canal is primarily intended for communications from the lockmaster to the vessel and is not continuously attended for receiving communications from the vessel.

4-6 Any vessel whose cargo consists of dangerous goods as described in Circular No. 7 shall advise the despatcher as to the nature of such cargo before entering the despatch area.

4-7 Unless otherwise permitted by the despatcher, a listening or standby watch shall be maintained by every vessel while within a Seaway despatch area.

## ***Circular No. 5***

### **SEAWAY NAVIGATION INSTRUCTIONS**

This Circular details the specific navigation instructions which must be followed by masters of vessels transiting the Seaway.

#### **Speed**

- 5-1 Every vessel transiting a canal shall proceed at a reasonable speed, so as not to cause undue delay to vessels navigating in the same direction.
- 5-2 Subject to such other speed as may be provided for in Seaway Notices to Mariners, the maximum speed for vessels moving in any Seaway Canal shall be six miles per hour over the bottom for vessels exceeding 260 feet in length and eight miles per hour for vessels under 260 feet long.

#### **Passing and meeting**

- 5-3 The passing and meeting of vessels in a canal shall be governed by the Rules of the Road for the Great Lakes made under the Canada Shipping Act, except when two vessels, either one of which exceeds one hundred feet in length are approaching a bend in the Lachine Canal from opposite directions, the downbound vessel shall have the right of way and the upbound vessel shall check its speed so as to avoid meeting in the bend.
- 5-4 Vessels shall not attempt to overtake other vessels in any canal, nor while within two thousand feet of a canal entrance structure, or after the order of passing through has been established by the despatcher.
- 5-5 Vessels shall not attempt to overtake other vessels between the western end of the Vidal Shoal Cut and the upper entrance to the Sault Ste. Marie lock.
- 5-6 A vessel passing a moored vessel or equipment working in a canal shall proceed at dead slow speed.

#### **Turning Basins**

Vessels shall not be turned in any canal except at the following turning basins and then only when authorized to do so by the despatcher:

*Laprairie Basin, Montreal*

- (a) Turning Basin No. 1—for any vessel.
- (b) Turning Basin No. 2—for any vessel.



### *Welland Ship Canal*

- (a) Opposite the St. Catharines Wharf—for vessels not exceeding three hundred and fifty feet in overall length.
- (b) Thorold—for vessels up to five hundred and fifty feet in overall length.
- (c) South of Port Robinson for vessels up to six hundred feet in overall length.
- (d) Opposite Welland Centre Wharf—for vessels up to two hundred and sixty feet in overall length.
- (e) Opposite Welland South Wharf—for vessels up to two hundred and sixty feet in overall length.
- (f) North of Lock 8 (Robin Hood Mill)—for vessels up to five hundred and fifty feet in overall length.

### **Dropping Anchor**

5-8 Unless an emergency exists anchors shall not be dropped in any canal nor between upbound and downbound calling in points, except in designated anchorage grounds.

5-9 The action of dropping an anchor shall be reported immediately to the despatcher and the anchor shall not be weighed for Seaway transit without permission from the despatcher.

### **Seaway Anchorage Grounds**

Windmill Point	Lake St. Louis
McKies Point	Lake St. Francis
Dickerson Island	Lake St. Francis
Wilson Hill Island	Lake St. Lawrence
Morrisburg	Lake St. Lawrence
Prescott	St. Lawrence River
Lake Ontario—off Port Weller	Lake Ontario
Lake Erie—off Port Colborne	Lake Erie

### **5-10 Procedures at Locks and Bridges**

A whistle or horn signal shall be sounded by a vessel when it comes abreast of the bridge whistle signs marked "W." unless the bridgmaster recognizes the vessel's approach by flashing the *red* signal light. On the South Shore and Beauharnois Canals these whistle signs have been placed 3,600 feet **upstream** and downstream from the movable bridges, except those over lock entrances. On the Welland Ship Canal similar bridge whistle signs have been placed at distances varying from 1,600 to 3,850 feet from the bridges.

- 5-11 A vessel shall not proceed to pass any bridge until such bridge is in the fully open position and the light thereon shows *green*, and in the case of pairs of the two railway bridges at Caughnawaga and bridges Nos. 17 and 18 and 20 and 21 on the Welland Ship Canal, until both bridges of the pair are in the fully open position and both are showing the *green* light.
- 5-12 When approaching a lock, guard gate or movable bridge the stem of the vessel shall not pass the sign marked LIMIT OF APPROACH while the signal light shows *red* or when no light is shown. At a lock, a *flashing red* light indicates that the lock is being made ready to receive a vessel, and at a guard gate or bridge it indicates that power is available to operate the structure for a vessel passage.
- 5-13 Except in the case of a tandem lockage, all vessels approaching a lock, while another vessel is in or about to enter the same, shall be moored until directed by the despatcher or the officer in charge to proceed.
- 5-14 When several vessels are waiting to enter a lock they shall moor in single tier and the bow of the leading vessel shall not pass the sign marked LIMIT OF APPROACH, unless otherwise directed by the despatcher or the officer in charge. Following vessels shall keep well closed up to the vessel ahead.
- 5-15 At the lower entrance to Lock No. 1 on the Lachine Canal, vessels shall keep clear of the entrance while the signal light shows *red* or when no light is shown.
- 5-16 The master of any vessel within a lock or approaching or leaving any lock, guard gate or bridge shall ascertain for himself whether or not such lock, guard gate or bridge is prepared to allow his vessel to enter or pass and he shall control his vessel so as to avoid collision with Seaway works or other vessel and no vessel shall attempt to enter or leave a lock until the gates, fender boom and bridge, if any, are fully opened.

### **Search Lights**

- 5-17 Vessels shall not use searchlights in such manner that the rays of the searchlight will interfere with the operation of a Seaway structure.

### **Smoke**

- 5-18 Vessels within canal waters shall take the necessary precautions to avoid the emission of sparks or excessive smoke. Vessels shall not blow boiler tubes in any canal.

## Refuse

- 5-19 No person shall deposit oil, oil sludge or other flammable or dangerous substance, or garbage, ashes, paper, ordure, litter or other materials in canal waters or on canal property, nor deposit any such substance or material so that pollution of canal waters could result.

## Circular No. 6

### PASSING THROUGH

(Pursuant to Sections 16, 17 and 18 of the Seaway Regulations)

## Locking

- 6-1 Each vessel shall advance to the lock in the order in which it arrives, unless otherwise instructed by the despatcher. If so instructed, a vessel small enough to pass through with a preceding vessel shall advance for that purpose ahead of its regular turn.

## Mooring Table

Showing the side on which the vessel will normally moor at the tie-up walls and in the locks, unless otherwise directed by the despatcher.

S=Starboard      Upb=Upbound  
P=Port            Dnb=Downbound

### Montreal to Iroquois

Locks	St. Lambert	Côte Ste Catherine	Lower	Beau- harnois Pool	Upper	Snell	Eisen- hower	Iroquois
Upb.....	P	P	S	—	S	S	S	P
Dnb.....	S	S	P	—	P	P	P	S
TIE-UP WALLS								
Upb.....	S	S	P	P	—	S	S	S
Dnb.....	P	P	—	S	P	P	P	P

### Welland Canal

Locks	1	2	3	4	5	6	7	8
Upb.....	S	P	P	P	P	P	P	S
Dnb.....	P	S	S	P	P	P	S	P
TIE-UP WALLS								
Upb.....	S	S	S	S	—	—	S	S
Dnb.....	P	P	P	—	—	—	S	S



## Preparing Mooring Lines for Passing Through

- 6-2 When preparing mooring lines for passing through a lock, the lines shall be drawn off the winch drums outwards through the fairleads and will be laid out on the vessel's deck in sufficient length to reach the mooring posts.
- 6-3 For upbound vessels heaving lines will be cast down from the mooring wall as soon as the vessel passes the open lock gates and shall be secured to the mooring lines two feet back of the splice of the eye by means of a clove hitch. The mooring lines will be hauled up to the mooring wall and placed on the mooring posts as directed by the lockmaster.
- 6-4 Downbound vessels shall use their own heaving lines and attach them to the mooring lines prior to entry into the lock ready to be passed to the lineman as soon as the vessel passes the open gates.
- 6-5 In cases of emergency, to check the vessel speed, at the orders of either the lockmaster or the master of the vessel, all mooring lines shall be put out as soon as possible and each line shall be placed on the nearest mooring post.
- 6-6 The slack mooring lines shall not be cast over the side of the vessel in a manner that will endanger the lock crew.
- 6-7 The winches from which the mooring lines run shall not be operated until a signal is received from the lockmaster or linesman that the line has been placed on a mooring post.
- 6-8 When a vessel is proceeding into a lock her engines shall be stopped before her stem reaches a point fifty feet from the sign marked STOP on the lock wall near the closed gates and she shall be moved into her mooring position by means of her lines and winches only, without working her engines except to check her speed or stop.
- 6-9 Vessels shall not proceed into a lock so far that her stem passes the STOP sign near the closed gates nor be moored in such a position that her stern extends beyond the STOP sign near the open gates.
- 6-10 A vessel whose deck level at the bow extends less than twelve feet above water surface when entering the Iroquois Lock or Lock 8 of the Welland Ship Canal, shall stop before her bow has reached a point one hundred feet from the sign marked STOP on the lock wall. Beyond this point the vessel shall manoeuvre into mooring position by means of her lines and winches only, but her stem shall not pass the STOP sign near the closed gates.
- 6-11 The engines of any vessel on the Lachine, Cornwall or Sault Ste. Marie Canals shall be stopped while the propeller wheel is passing over the mitre sills.

**6-12** The engines of a vessel entering a lock on the Lachine, Cornwall or Sault Ste. Marie Canals shall be stopped when her bow reaches the middle of the lock between the upper and lower gates and she shall then be moved into mooring position by her lines alone.

**6-13** When preparing to leave the lock, none of the vessel's mooring lines shall be cast off until the exit gates and fenders of the lock and the bridge, if any, are in a fully open position. A signal that the vessel may proceed will be given by the lockmaster to the master of vessel.

### **Tandem Lockages**

**6-14** When two or more vessels are being locked together the vessels astern of the leading vessel shall come to a full stop a sufficient distance from the preceding vessel to avoid collision.

### **Vessels in Tow**

**6-15** A vessel that is not self-propelled shall not be underway in any canal unless it is securely tied to its towing vessel.

**6-16** A vessel whose overall length exceeds two hundred and sixty feet shall be towed by two adequate tugs one forward and one aft.

**6-17** Vessels shall not be towed in any canal by another vessel fastened alongside or astern of the towed vessel, unless

(a) the wheelsman of the towing vessel has an unobstructed view of the full outline of the deck at the bow of the towed vessel and of the water surface four hundred feet in advance of its bow, or

(b) when underway there is at all times on the deck of the vessel being towed a deck officer to signal directions to the wheelsman.

**6-18** All vessels handled by one tug shall be propelled with an adequate tug securely tied alongside or astern to insure that the tug will fully control the towed vessels.

**6-19** No vessel shall be fastened alongside of its towing vessel so that the total beam exceeds forty feet in the Cornwall Canal or fifty-five feet in the Sault Ste. Marie Canal or seventy-two feet on any other Seaway Canal.

**6-20** No more than one vessel shall at one time be towed by another vessel in any canal without permission in writing of the Superintending Engineer or the Superintendent. When required by the Director or Superintending Engineer, two adequate tugs or other vessels shall be provided for towing any vessel.

- 6-21 The master of a vessel or tug arriving at the entrance of any canal with two or more vessels in tow for passage through the canal shall arrange with the despatcher for the mooring of such vessels of the tow which cannot proceed immediately through the canal. Each vessel moored shall be in charge of a competent person appointed by the master who shall obey the orders of the Seaway officer in any matter relating to the position of the vessel and the accommodation or fastenings thereof.
- 6-22 When vessels that are towed or propelled by an accompanying tug and are not equipped with deck winches, one of the crew shall be detailed to attend to each of the mooring lines at the vessel's cleats or mooring bitts while the vessel is within a lock. The crew members so assigned shall take up the slack as the vessel rises or pay out lines as the vessel lowers, in order to properly control the vessel while the lock is being filled or emptied.

### **Mooring and Fastening**

- 6-23 No vessel shall be fastened or moored so as to obstruct navigation.
- 6-24 Crew members may go ashore if so directed by the Master for the purpose of mooring or handling the vessels' lines or for other essential duties.
- 6-25 Vessels that have moored at a wharf or tie-up wall on any canal shall not proceed further until permitted to do so by the despatcher or the lockmaster.
- 6-26 Vessels shall not tie to a canal bank except in cases of emergency, or if so instructed by the despatcher, and if a master has to tie to a bank or is otherwise held on a bank, he shall advise the despatcher without delay and shall conform with the instructions of the despatcher.

### **Restricted Transit**

- 6-27 The transit of pleasure craft shall be scheduled so as to avoid interference with other shipping and may be delayed until the officer in charge considers that the craft may pass through safely.

### **Failure to Comply with Orders**

- 6-28 In the event of noncompliance with an order of a despatcher, the Authority may remove and relocate the vessel with respect to which the order was not carried out at the cost of the vessel's owner.



*Charts 1340, 1409*

The **Laprairie Canal** section of the St. Lawrence Seaway, 18½ miles in length, extends from Longueuil to Caughnawaga. The canal, containing the St. Lambert and Côte Ste. Catherine locks, that together, overcome the difference in elevation between Lake St. Louis and Montreal Harbour, is flanked by two rip-rap embankments, that lead around the south shore of the river in a broad curve, by-passing the **Lachine Rapids**.

**Jacques Cartier Bridge** (Lat. 45°31' N., Long. 73°32' W.). This highway bridge crosses the St. Lawrence, abreast the lower end of **Ile Ste. Hélène**, to which island the bridge has access. The span traversing the Seaway canal has a minimum vertical clearance of 120 feet (36<sup>m</sup>6) at high water and a width between abutments of 200 feet (61<sup>m</sup>0).

The canal branches in a south-southeasterly direction from the main Ship Channel in Montreal Harbour, between black light-buoys 187½M and 193M (page 72), one mile northward of Jacques Cartier Bridge and leads in a 168° direction for 3 miles to the St. Lambert lock with an average width of 225 feet (68<sup>m</sup>6).

**Lights.**—The embankments are illuminated at night to aid vessels navigating the waterway. *Fixed white* lights are exhibited from the piers of the Jacques Cartier Bridge.

The **St. Lambert Lock**, 766 feet (233<sup>m</sup>5) in length and 80 feet (24<sup>m</sup>4) wide, has an approach wall 2,954 feet (900<sup>m</sup>4) in length, situated on the western side of the canal. Abreast the approach wall the 27-foot (8<sup>m</sup>2) canal has been widened to 500 feet (152<sup>m</sup>4) and a further 200 feet (61<sup>m</sup>0) at the lower entrance to the regulating channel has been dredged to a depth of 18 feet (5<sup>m</sup>5).

Above the lock, a concrete approach wall 2,268 feet (691<sup>m</sup>3) in length parallels the western embankment. Abreast the approach wall, the 27-foot (8<sup>m</sup>2) canal has been widened to 500 feet (152<sup>m</sup>4) at the upstream end.

The **Victoria Bridge**, a combined road and railway bridge spans the St. Lawrence River from **Point St. Charles** to St. Lambert on the southeast shore. The main span traverses the St. Lambert Lock at the lower end, and a diversionary road and rail bridge crosses the lock at the upstream end. Both bridges have vertical lift sections with a minimum overhead clearance of 120 feet (36<sup>m</sup>6).

*Chart 1409*

The canal, 300 feet (91<sup>m</sup>4) wide and flanked on the west side by a rip rap embankment, and on the east by shoal water and spoil banks, leads first southeasterly, thence southward to the No. 1 Turning Basin, 4 miles above St. Lambert Lock. No. 1 Turning Basin, 2,500 feet (762<sup>m</sup>0) in length and 1,500 feet (457<sup>m</sup>2) wide, extends eastward from

*Chart 1409*

the main canal and has been dredged to a depth of 27 feet (8<sup>m</sup>2). The limits of the Turning Basin are marked by four light-beacons showing *fixed green* lights.

The **Champlain Bridge**, under construction (1959), spans the St. Lawrence from Montreal to **Nuns Island**, thence to the southeast shore. The bridge, with a minimum vertical clearance of 120 feet (36<sup>m</sup>6), crosses the canal midway between St. Lambert Lock and La Prairie Turning Basin No. 1.

Above the turning basin, the canal, maintaining a least width of 300 feet (91<sup>m</sup>4) between the western embankment and the spoil banks lining the edge of a shoal bank on the south and east, commences a 90-degree turn to the westward over a distance of 4 miles to the lower end of Côte Ste. Catherine Lock.

The **Côte St. Catherine Lock**, 766 feet (233<sup>m</sup>5) in length and 80 feet (24<sup>m</sup>4) wide, has an approach wall 1,603 feet (488<sup>m</sup>6) in length, situated on the northern side of the canal. Abreast the approach wall, the canal expands to a width of 450 feet (137<sup>m</sup>2). Close below the lower end of the approach wall, is situated No. 2 Turning Basin, 2,400 feet (731<sup>m</sup>5) in length and 1,500 feet (457<sup>m</sup>2) wide. The limits of No. 2. Turning Basin are marked by four light-beacons showing *fixed green* lights.

Above the lock, a concrete approach wall 1,590 feet in length, parallels the northern embankment. Abreast the approach wall, the canal expands to a width of 450 feet. (137<sup>m</sup>2)

A rolling lift bridge spans the lock between the upstream and sector gates. A regulating channel, into which empty the waters of the **St. Regis River**, parallels the lock close southward.

A pondage pool, designed to lessen the drainage of water from the canal on flooding the lock, is situated upstream from the lock and extends southward from the canal. Immediately westward from the pondage pool, on the south side of the canal, is Côte Ste. Catherine wharf, 2,000 feet (609<sup>m</sup>6) in length, with a depth of 27 feet (8<sup>m</sup>2) along side.

Upstream from Côte Ste. Catherine lock, the canal extends in a general westerly direction for 8 miles, to its entry into Lake St. Louis. The canal is flanked by two embankments, and has a least width of 250 feet (76<sup>m</sup>2) throughout the above section. Three black and three red spar buoys mark the channel limits southeastward of the Honore Mercier Bridge.

The **Honore Mercier Highway Bridge** and a Canadian Pacific railway bridge situated close westward, span the St. Lawrence River and Seaway canal from **Ville La Salle**, on the north shore, to Caughnawaga, on the south shore, 4½ miles above Côte Ste. Catherine lock.

*Chart 1409*

The railway bridge has a lift bridge section across the canal, and the highway bridge a fixed span. Both bridges have a minimum vertical clearance of 120 feet (36<sup>m</sup>6).

**Lights.**—*Fixed White* lights are exhibited from the piers of the above bridges on either side of the channel.

**Caughnawaga** (Lat. 45°25' N., Long. 73°41' W.), an Indian village and reservation, is situated on the south shore of the St. Lawrence, at the lower end of Lake St. Louis, and abreast the head of the Lachine Rapids. The church, situated in the village, is conspicuous.

Two miles westward from Caughnawaga, the Laprairie Canal enters Lake St. Louis.

*Chart 1410*

**Lake St. Louis**, an expansion of the St. Lawrence River, at its junction with the western mouth of the Ottawa River, is about 15 miles long, east and west, with a greatest breadth of 7 miles. The land near the shore is low. The current has an average rate of about half a knot.

**Ile Perrot**, 7 miles long and 3½ miles wide, is situated in the northwestern portion of the lake; narrow boat channels lead on either side of the island, into the portion of the Ottawa River, named the **Lake of Two Mountains**. The northwest and southwest parts of Ile Perrot are higher than the generality of the lake shore, that portion between the village of Ste. Jeanne and Pointe au Sable, being about 80 feet (24<sup>m</sup>4) high, and cultivated. Lake St. Louis is known as Lachine Lake by many of the pilots.

The south shore of the lake trends irregularly westward from Caughnawaga, 3 miles to the estuary of the **Chateauguay River**, that enters Lake St. Louis through two mouths, around St. Bernard Island.

The southwest extremity of **St. Bernard Island** is marked by a small, conspicuous, green hill, about 100 feet (30<sup>m</sup>5) high, named The Mound, in which is erected a cross. A channel, one mile long, suitable for light-draught vessels, leads southward of The Mound to Chateauguay. A channel leading to Chateauguay Basin, through the eastern entrance, was reported to have a depth of 8 feet (2<sup>m</sup>4) in 1938. There is a Government wharf at **Chateauguay**, 143 feet (43<sup>m</sup>6) long, with a depth of 8 feet (2<sup>m</sup>4) alongside the face.

From St. Bernard Island, the south shore of Lake St. Louis runs southwestward 7 miles, to Beauharnois, thence westward 2 miles, to the entrance of the Lower Beauharnois Lock.

The town of **Beauharnois**, situated at the mouth of the **St. Louis River**, had in 1956, a population of 6,774. The church has two spires, and situated on low land northwestward of the church is a large factory. A Government wharf extends 117 feet (35<sup>m</sup>7) northward,



*Chart 1410*

thence 83 feet (25<sup>m</sup>3) westward. In 1940, there was a depth of 12 to 15 feet (3<sup>m</sup>7 to 4<sup>m</sup>6) alongside. The wharf is protected by a breakwater, 150 feet (45<sup>m</sup>7) in length, with a depth of 12 feet (3<sup>m</sup>7) in the berth, 80 feet (24<sup>m</sup>4) in length, alongside. The approach channel, with a least depth of 10 feet (3<sup>m</sup>0) is marked by a black and a red spar buoy.

The shore between St. Bernard Island and Beauharnois is fronted by an extensive group of low islands, known as **Iles de la Paix**, being separated from **Maple Grove**, one mile eastward of Beauharnois, by **Bergeron Channel**, a narrow winding channel suitable for vessels of light draught.

**Leading lights.**—Leading lights are exhibited at Beauharnois. The front light is exhibited, at an elevation of 14 feet (4<sup>m</sup>3) from a pole with a diamond-shaped daymark, situated on the wharf. The rear light is exhibited, at an elevation of 30 feet (9<sup>m</sup>1) from a similar structure, 415 feet (126<sup>m</sup>5), 175°, from the front light. Both lights are *fixed red*.

From the entrance of the Laprairie Canal into Lake St. Louis, 2 miles westward of Caugnawaga, the Seaway channel, with a least width of 450 feet (137<sup>m</sup>2) follows the south shore of Lake St. Louis closely for 3 miles in a westerly direction, passing southward of **St. Nicholas Island**; thence, 4½ miles southwestward to abreast Windmill Point, the eastern extremity of **Ile Perrot**; thence, in a west-southwesterly direction to the Lower Beauharnois Lock approach.

**Buoyage.**—The south limit of the channel leading from the South Shore canal to the turn northeastward of St. Bernard Island, is marked by four black light-buoys and one black spar buoy, 1A, 9A, 13A, 17A and 5A, respectively, moored at intervals of about half a mile. Black light-buoy, 9A, shows a *flashing green* light and the other three light-buoys, *quick flashing green* lights. A black spar buoy marks the south side of the channel abreast the western end of the canal dyke.

The northern limit of the channel is marked by four red light-buoys, 2A, 10A, 14A and 18A, and a red spar buoy, 6A. Red light-buoy, 10A, shows a *flashing red* light, and light-buoys, 2A, 14A and 18A, *quick flashing red* lights. Between light-buoys 17A and 18A, the channel has been expanded to a width of 1,200 feet (365<sup>m</sup>8) to allow vessels room to navigate a turn to the southwestward.

Between black light-buoys 21A and 39A, that exhibit *quick flashing green* lights, and are moored at turns in the channel, are situated two black light-buoys, 27A and 33A, showing *flashing green* lights and three black spar buoys, 23A, 29A and 35A.

The northwestern limit of the channel is marked by red light-buoys, 22A, 28A and 34A, showing *flashing red* lights, and 38A and

### Charts 1410, 1411

40A, showing *quick flashing* red lights, marking the turn in the channel abreast Windmill Point. Red spar buoys 24A, 30A and 36A are moored opposite black spar buoys, 23A, 29A and 35A, respectively.

From abreast **Windmill Point** the channel, with a least width of 600 feet (182<sup>m</sup>9), extends in a west-southwest direction parallel to the southeastern shore of Ile Perrot, to the Lower Beauharnois Lock approach channel.

The northern limit of the channel is marked by three red spar buoys, 42A, 48A and 54A, two red light-buoys, 46A and 52A, showing *flashing red* lights, and red light-buoy 58A, showing a *quick flashing red* light, moored abreast the turn leading to the Lower Beauharnois Lock.

The south limit of the channel is marked by black spar buoys, 41A and 47A, and black light-buoy, 45A, showing a *flashing green* light.

**Anchorage area.**—An anchorage area for vessels awaiting transit into Lac St. Francis, 1 $\frac{3}{4}$  miles in length and about three-quarters of a mile wide, with depths of from 8 to 17 fathoms (14<sup>m</sup>6 to 31<sup>m</sup>1), clay and stone bottom, extends northward and eastward from the entrance to the Lower Beauharnois Lock, and southward from the main channel.

The eastern extremity of the anchorage area is marked by black light-buoy 51A, showing a *quick flashing green* light, and the southeastern and southern extremities, by black light-buoys, 55A and 59A, respectively, showing *flashing green* lights.

### Chart 1411

The **Beauharnois Canal**, leading from Lake St. Francis to Lake St. Louis is 15 miles long, and has a least width of half a mile. A power dam, operated by the Quebec Hydro-Electric Commission, extends across the lower entrance of the canal at its juncture, with Lake St. Louis, midway between the towns of Beauharnois and **Melocheville**. The difference of elevation of the two lakes, amounting to 83 feet (25<sup>m</sup>3), is overcome by the Upper and Lower Beauharnois Locks, situated three-quarters of a mile apart.

The **Lower Beauharnois Lock**, 766 feet (233<sup>m</sup>5) in length, and 80 feet (24<sup>m</sup>4) wide, is situated close westward of the power dam. The lower approach wall, 2,124 feet (647<sup>m</sup>4) in length, is situated on the eastern side of the entrance. An area abreast the middle of the approach wall, on the west side of the channel, has yet to be dredged to the controlled depth of 27 feet (8<sup>m</sup>2) (1959). The channel leading eastward of this area is 225 feet (68<sup>m</sup>6) wide.

The upper approach wall, 1,012 feet (308<sup>m</sup>5) in length, parallels the east side of the channel immediately above the lock.

## Chart 1411

The lock and approach walls are illuminated at night to aid vessels navigating the waterway. A tunnel passes under the lock, carrying a four-lane highway.

The channel between the Lower and Upper Beauharnois Locks, three-quarters of a mile in length, has a least width of 300 feet (91<sup>m</sup>4). A pondage area, 750 feet (228<sup>m</sup>6) in length, is situated westward of the lower end of the channel between the locks. A drainage canal leads from the northern end of the pondage area into Lake St. Louis.

The **Upper Beauharnois Lock**, 766 feet (233<sup>m</sup>5) in length, and 80 feet (24<sup>m</sup>4) wide, has an approach wall 1,023 feet (311<sup>m</sup>8) in length, situated on the east side of the channel below the lock. Above the lock, the approach wall, 2,265 feet (690<sup>m</sup>4) in length, is situated on the east side of the channel.

The New York Central railway swing-bridge traverses the upper end of the Upper Beauharnois Lock.

Above the Upper Beauharnois Lock, the Seaway Channel follows the northwestern shore of the Beauharnois Canal closely in a 210° direction for 3 miles. The channel has a least width of 600 feet (182<sup>m</sup>9), and is marked on the northwest side by red light-buoys, 8B and 12B, showing a *flashing red* and *quick flashing red* lights, respectively. Red spar buoy, 10B, is moored midway between the above light-buoys. The southeast limit of the channel is marked by black light-buoys, 5B, 9B, and 13B, showing *flashing green* lights. Black spar buoys are moored midway between the above light-buoys.

Abreast light-buoy, 13B, the channel achieves a maximum width of 950 feet (289<sup>m</sup>5), and extends in a southwesterly direction for about 3 miles to the St. Louis vertical lift-bridge. The northwest limit of the channel is marked by three red light-buoys, showing *flashing red* lights, and a red spar buoy, and the southeast limit by two black spar buoys and two black light-buoys, 17B, and 19B, showing *quick flashing green* and *flashing green* lights, respectively.

The St. Louis combined road and rail bridge, spans the Beauharnois Canal 6 miles above the entrance to the Upper Beauharnois Lock. The section spanning the Seaway Channel, 175 feet (53<sup>m</sup>3) wide, is raised vertically to allow a minimum vertical clearance of 120 feet (36<sup>m</sup>6). Details of light and sound signals to be complied with by vessels approaching the bridge are contained in Circular No. 5 of the Seaway Regulations, Procedure at Locks and Bridges.

Above the St. Louis Bridge, the channel follows a general westerly direction close along the north bank of the Canal, for about 5½ miles, to the **Valleyfield Bridge**. This section of the channel has a least width of 600 feet (182<sup>m</sup>9), and is marked by eight red light-buoys showing *flashing red* lights, and four red spar buoys on the north limit of the channel, and seven black light-buoys, showing *flashing green* lights, and five black spar buoys, on the south limit.

*Chart 1411*

Valleyfield combined road and rail bridge, spans the Beauharnois Canal  $11\frac{3}{4}$  miles above the entrance to the Upper Beauharnois Lock. The vertical lift section of the bridge spanning the Seaway Channel, 175 feet (53<sup>m</sup>3) wide, has a minimum vertical clearance of 120 feet (36<sup>m</sup>6). Details of light and sound signals to be complied with by vessels approaching the bridge, are contained in Circular No. 5 of the Seaway Regulations, Procedure at Locks and Bridges.

Above the **Valleyfield Bridge**, the Seaway Channel has a least width of 600 feet (182<sup>m</sup>9), and continues to follow the north bank of the Beauharnois Canal closely, for  $2\frac{1}{2}$  miles to its juncture with Lake St. Francis, between Ile de la Grosse Pointe and Pointe du Milieu. The north limit of the channel is marked by red spar buoy, 50B, close below Valleyfield Bridge, red light-buoys, 52B and 58B, showing *flashing red* lights and red light-buoy, 56B, showing a *quick flashing red* light. The south limit of the channel is marked by black spar buoy, 49B, moored opposite, 50B, at the expansion of the channel above Valleyfield Bridge, black light-buoy, 53B, showing a *flashing green* light, and black light-buoy, 61B, showing a *quick flashing green* light, moored 300 feet (91<sup>m</sup>4) southward of the line of the Valleyfield range.

*Chart 1412*

**Lake St. Francis**, an expansion of the St. Lawrence River, is 27 miles long, from the Canadian National Railways bridge at Coteau Landing, to Glengarry Point, its greatest breadth being 4 miles. The shores are low and wooded, and the strength of the current is not great, nowhere exceeding a rate of half a knot. The principal villages on the northwest shore of the lake are Coteau Landing, South Lancaster, and Summerstown. On the southeast shore, the only village near the lake, is St. Anicet, with its very conspicuous church. The southwestern portion of this shore is very low, and sometimes under water.

The boundary on the northwest shore, between the Province of Quebec and Ontario, is near McKies Point. On the southeast shore, the southern limit of Quebec Province, is the International Boundary line of the forty-fifth parallel of latitude.

From **Pointe du Milieu** at the south entrance to the Beauharnois Canal, the low southeast shore of Lake St. Francis extends southward about one mile, forming the east shore of **Hungry Bay**. Hence the shore trends nearly west,  $6\frac{1}{4}$  miles to the T-shaped wharf at the village of **St. Louis**, which has a depth of 7 feet (2<sup>m</sup>1) along the face.

**Grenadier Island**, 270 yards (246<sup>m</sup>8) long, and about 10 feet (3<sup>m</sup>0) high, is situated about 2 miles northeast of the wharf at St. Louis. The trees on the island being different in character from those on the neighbouring shore, render it conspicuous. Shoal water



*Chart 1412*

extends three-quarters of a mile east and west of it, and, in the latter direction, is situated a cluster of boulders, above water, known as **The Lump**.

From St. Louis, the south shore trends westward  $3\frac{3}{4}$  miles to **Pointe Caissonette**, thence two-thirds of a mile southwestward to the village of St. Anicet. **Ile Chrétien** and **Ile Kindly**, are situated  $1\frac{1}{2}$  miles northeast of Pointe Caissonette.

**Port Lewis Flats**.—The south shore of Lake St. Francis, between Ile Chrétien and the head of Hungry Bay, is fronted by a shallow bank, 300 yards ( $274^m3$ ) wide at Ile Chrétien,  $2\frac{1}{4}$  miles off St. Louis, and one mile off the head of Hungry Bay, leaving a channel between it and the bank from the north shore, a third of a mile wide, through which the Seaway Channel leads.

**St. Anicet**, a small village on the southeast shore, has an ornate and imposing church, the dome being particularly conspicuous. The Government wharf has a face 93 feet ( $28^m3$ ) long, with a depth of  $6\frac{1}{2}$  feet ( $1^m9$ ) in the berth alongside. A conspicuous cross, about 75 feet ( $22^m9$ ) high, is situated half a mile eastward of St. Anicet wharf.

**St. Anicet Shoal**,  $2\frac{1}{4}$  miles long, with a least depth of 4 feet ( $1^m2$ ), and covered by a dense growth of weed during summer months, lies off the southeast shore between Pointe Caissonette and St. Anicet. The Seaway Channel passes between St. Anicet Shoal and **Pointe Mouillée Flats**.

**Pointe Dupuis** is situated a little over 2 miles westward of St. Anicet, the flat between, under 6 feet ( $1^m8$ ) in depth, and in places practically dry, extending out more than half a mile. A small islet, named **Lanouette**, with three smaller ones, lies close westward of the point.

**Cherry Island**, with trees close west of the disused lighthouse, lies three-quarters of a mile northeastward of Pointe Dupuis.

**Coteau Landing** (*Lat.  $45^{\circ}15' N.$ , Long.  $74^{\circ}13' W.$* ), on the northwest shore at the northeast extremity of Lake St. Francis, is situated opposite the entrance to the **Soulanges Canal**.

The depth at the Government wharf is not less than 10 feet ( $3^m0$ ).

A breakwater, about 550 feet ( $167^m6$ ) long, protects the entrance to the canal.

**Lights**.—A *flashing red* light is exhibited, at an elevation of 17 feet ( $5^m2$ ), from a steel tank surmounted by a lantern, situated on the southeast end of the breakwater.

*Chart 1412*

*Fixed red* leading lights are exhibited at the entrance to the Soulanges Canal. The front light is exhibited, at an elevation of 31 feet (9<sup>m</sup>4), from a white circular building, situated on the northwest guard pier of the canal. The rear light is exhibited, at an elevation of 46 feet (14<sup>m</sup>0), from a similar structure, 1,585 feet (483<sup>m</sup>1), from the front light. The lights in line, bearing 037°, indicate the northwest limit of the dredged channel leading to the canal.

**St. Zotique** is situated on the northwest shore, about two miles southwestward from Coteau Landing.

A wharf, 132 feet (40<sup>m</sup>2) long, with a depth of 7 feet (2<sup>m</sup>1) along the face, is situated at St. Zotique.

**Hay Point**, situated 2 miles southwestward of St. Zotique, a low projection under 10 feet (3<sup>m</sup>0) in height, and otherwise bare, has a conspicuous clump of willow on its extremity.

**McKies Point** (Point au Baudet), situated 3 miles southwestward of Hay Point, has the appearance of an island until close to.

The 3-fathom (5<sup>m</sup>5) edge of the shorebank, between Coteau Landing and McKies Point, extending over half a mile from shore, is fairly straight.

**Light.**—A *fixed white* light is exhibited, at an elevation of 36 feet (11<sup>m</sup>0), from a white square building, situated on McKies Point.

**Pointe Mouillée** is 4 miles southwestward of McKies Point, and the shore between forms a deep bight, with depths under 10 feet (3<sup>m</sup>0).

**Pointe Mouillée Flats.**—In addition to the shorebanks on either side of Pointe Mouillée, a shallow area, with as little as 4 feet (1<sup>m</sup>2) on its western portion, containing dense growths of weed during the summer months, extends 3 miles, below Pointe Mouillée.

From Pointe Mouillée, the north shore runs with a considerable inward curve, west of south, 5½ miles to **South Lancaster**, Ontario, the pier at which has a depth of 9 feet (2<sup>m</sup>7).

The shore between Pointe Mouillée and South Lancaster is fronted by extensive flats.

**Leading lights.**—*Fixed white* leading lights are exhibited at the western entrance to the Beauharnois Canal. The front light is exhibited, at an elevation of 50 feet (15<sup>m</sup>2), from a light-structure situated about one mile east-southeastward from **Grosse Pointe**. The rear light is exhibited, at an elevation of 70 feet (21<sup>m</sup>3), 5,000 feet (1524<sup>m</sup>0) from the front light. The lights in line astern, bearing 083½° lead down the middle of the Seaway Channel into Lake St. Francis.

Chart 1412

**Seaway Channel.**—From the entrance to the Beauharnois Canal, the Seaway Channel, having a least width of 450 feet (137<sup>m</sup>2) extends in a 263½° direction for 4¼ miles.

The north limit of the channel is marked by one red spar buoy and four red light-buoys, showing *flashing red* lights in addition to red light-buoy, 36F, showing a *quick flashing red* light moored at the western extremity of the reach. The south limit is marked by two black spar buoys and three black light-buoys, showing *flashing green* lights.

Abreast light-buoy, 36F, the channel alters southwestward for a distance of about 2¾ miles. The channel, 425 feet (129<sup>m</sup>5) wide is marked on the north limit, by red light-buoy, 40F, showing a *flashing red* light, a red spar buoy, 44F, and red light-buoy, 46F, showing a *quick flashing red* light, moored at the northwestern extremity of the reach. The south limit is marked by two black light-buoys, 37F and 43F, showing *flashing green* lights and black spar buoy, 45F.

Abreast light-buoy, 46F, the channel, 450 feet (137<sup>m</sup>2) wide, alters south-southwestward for nearly 2½ miles, passing between the eastern extreme of Pointe Mouillée Flats and the western edge of Port Lewis Flats.

Along this reach, the western extremity of Ile Chetien ahead, provides a useful steering mark. The west limit of the channel is marked by red light-buoys, 50F and 52F, showing *flashing red* lights, and the east limit by black light-buoys, 47F, showing a *flashing green* light and 53F, at the southern extremity of the reach, showing a *quick flashing green* light.

**Pier lights.**—Permanent aids to navigation in the form of piers, from which lights are exhibited, have been erected at intervals throughout Lake St. Francis, and will eventually replace or supplement the present floating aids, after extensive dredging and channel improvements have been carried out in the Seaway Channel.

A *flashing red* light is exhibited, from pier 54F, situated on the east extremity of Pointe Mouillée Flats, 800 feet (243<sup>m</sup>8) northward of the channel limit.

A *flashing white* light is exhibited, from pier 49F, situated on the northwest edge of Port Lewis Flats, 700 feet (213<sup>m</sup>4) eastward of the channel limit.

Abreast light-buoy, 53F, the channel, 450 feet (137<sup>m</sup>2) wide, alters to a general southwesterly direction for 6 miles, passing southward of Pointe Mouillée Flats and northward of St. Anicet Shoal, to a position northwestward of Pointe Dupuis. The north limit of the channel is marked by red light-buoy, 60F, showing a *quick flashing red* light, and red light-buoys, 64F and 72F, showing *flashing red* lights.

A *flashing red* light is exhibited, from pier 68F, situated 400 feet (121<sup>m</sup>9) northward of the channel.

*Chart 1412*

The south limit of the channel is marked by black spar buoys, 57F, 59F and 69F, and black light-buoys, 61F and 71F, showing *flashing green* lights, and black light-buoy, 73F, showing a *quick flashing green* light, moored at the southwestern extremity of the reach.

A *flashing white* light is exhibited, from pier 63F, situated, on the northwestern edge of St. Anicet Shoal, 200 feet (61<sup>m</sup>0) southward of the channel.

*Fixed white* leading lights are exhibited close northward of Pointe Dupuis. The front light is exhibited, at an elevation of 30 feet (9<sup>m</sup>1), from a structure situated on an island 300 yards (274<sup>m</sup>3) northeastward of Ile Lanouette. The rear light is exhibited, at an elevation of 45 feet (13<sup>m</sup>7), 1,300 feet (396<sup>m</sup>2) from the front light. The lights in line, bearing 086°, lead through the channel westward from Pointe Dupuis.

*Chart 1413*

From abreast Pointe Dupuis, a series of channels lead up the southern portion of Lake St. Francis, uniting with the steamer channels near the east end of **St. Regis Island**. This portion of the lake contains a maze of shoal areas, overgrown with weeds and rushes in midsummer, and with many deep, winding intersecting channels, none of which have any aids to navigation. They are navigable, however, by yachts and small craft exercising caution, and lead to various summer resorts along the south shore. Bordering the south shore are **Sheep, Cat, Kitten, Buchanan, Senecal, Content, Christatee, Plum,** and **Round** Islands, in the order named. Some of these islands are privately owned, others being Indian reserve territory.

From South Lancaster, the north shore trends southwesterly 3 miles to **Frazer Point**. Two islands lie a quarter of a mile off this shore, named **The Cairn** and **Grape Island**. The first, as its name indicates, has erected upon it a conspicuous stone cairn, called locally, The Monument.

**Lancaster Bar**, an area of shallow water, almost blocking the river, but with a deep channel through it, lies southeastward of Lancaster.

From Frazer Point, the shore trends southwesterly, 2½ miles, to a point close to the west extremity of Hamilton Island. **Hamilton Island** is connected to the mainland by a bridge, under which is a shallow boat passage. Southwestward, 200 yards (182<sup>m</sup>9) from its lighthouse, is a wharf alongside which there is good water. Hamilton Island is about 30 feet (9<sup>m</sup>1) high, and the compactness of the trees on its southeast side gives a rounded appearance. It has a number of cottages on it.



*Chart 1413*

**Light.**—On the southeast coast of Hamilton Island is erected a white square building, which, at a height of 42 feet (12<sup>m</sup>8), exhibits a *fixed red* light.

**St. Francis Island**, a third of a mile long, lies northeast of Hamilton Island, being separated from it and the north shore by channels suitable for small craft.

**Butternut and Ross Islands** occupy the middle of Lake St. Francis south of South Lancaster. Butternut Island, 18 feet (5<sup>m</sup>5) high, has several farm buildings near its northern end and lies close southeastward of the Seaway Channel. From both islands, shallow banks extend northeastward 3 miles to Lancaster Bar.

**Thompson Island**, three-quarters of a mile long, is situated on the southeast side of the ship channel, half a mile from St. Francis Island. It has farm buildings on it near its northern end.

**Squaw Island**, 8 feet (2<sup>m</sup>4) high, with a few bushes on it, is small and situated between Fraser Point and Butternut Island on the north-west side of the ship channel.

**Seaway Channel.**—From abreast light-buoy, 73F, northwestward of Pointe Dupuis, the channel extends in a 266° direction for 1½ miles southward of **Island Bank Shoal**. The north limit of the channel is marked by red spar buoys, 74F and 76F, and red light-buoy, 80F, showing a *quick flashing red* light. The south limit of the channel is marked by black spar buoy, 75F, and black light-buoy, 77F, showing a *flashing green* light.

A *flashing white* light is exhibited, at an elevation of 30 feet (9<sup>m</sup>1), from a pier, situated on the south limit of the channel abreast light-buoy, 80F.

**Leading lights.**—Leading lights are exhibited northwestward from Butternut Island. An *occulting white* light is exhibited through a sector 000°-060°, at an elevation of 34 feet (10<sup>m</sup>4), from a hexagonal tower situated about half a mile north-northwestward of Butternut Island. An *occulting red* light is exhibited through a sector 060°-270°, from the above structure. The rear light, a *fixed white* light is exhibited, at an elevation of 56 feet (17<sup>m</sup>1), from a pier 2,800 feet (853<sup>m</sup>4) from the front light. The lights in line, bearing 228½°, lead through Lancaster Bar from abreast light-buoy, 80F.

From abreast light-buoy, 80F, the channel is 450 feet (137<sup>m</sup>2) wide, and extends in a 228½° direction for about 2 miles to the intersection of the Thompson Island range. The north limit of the channel is marked by red light-buoys, 84F and 86F, showing a *flashing red* and *quick flashing red* light, respectively. The south limit of the channel is marked by black light-buoy, 81F showing a *flashing green* light and two black spar buoys.

## Chart 1413.

**Leading lights.**—*Fixed white* leading lights are exhibited from Thompson Island. The front light is exhibited, at an elevation of 30 feet (9<sup>m</sup>1), from a skeleton, steel structure, situated on a shoal bank extending northward from Thompson Island. The rear light is exhibited, at an elevation of 56 feet (17<sup>m</sup>1), from a similar structure, 2,450 feet (746<sup>m</sup>8), from the front light. The lights in line, bearing 207 $\frac{1}{4}$ °, lead between Butternut and Squaw Islands to the intersection of the Butternut Island range.

*Fixed white* leading lights are exhibited from the vicinity of Butternut Island. The front light is exhibited, at an elevation of 30 feet (9<sup>m</sup>1), from a skeleton, steel tower, situated on the northwest side of Butternut Island. The rear light is exhibited, at an elevation of 56 feet (17<sup>m</sup>1), from a similar structure, 2,350 feet (716<sup>m</sup>3) from the front light. The lights in line, bearing 045 $\frac{3}{4}$ °, lead between Thompson and St. Francis Islands to the intersection of the Thompson Island upper range lights. From abreast light-buoy 86F, the channel extends about 1 $\frac{1}{2}$  miles in a 207 $\frac{1}{4}$ ° direction, thence about 2 $\frac{3}{4}$  miles in a 225 $\frac{3}{4}$ ° direction, to a position close southward of Hamilton Island. The channel has a least width of 450 feet (137<sup>m</sup>2) over this distance and is marked on the west limit by four light-buoys showing *flashing red* lights and three red spar buoys. The south limit is similarly indicated by five light-buoys showing *flashing green* lights, and a *flashing white* light, exhibited at an elevation of 26 feet (7<sup>m</sup>9), from a white, cylindrical, steel tank, situated on the southeast limit of the channel southeastward from St. Francis Island.

The northwest shore of Lake St. Francis trends from Hamilton Island westerly, nearly 3 $\frac{1}{4}$  miles to **Glengarry Point**.

**Renshaw Island**, on the northwest side of the ship channel and nearly half a mile long, is separated from **Hamilton Island** by a narrow boat channel. The island is flat, 5 feet (1<sup>m</sup>5) high; behind the island is situated the small village of **Summerstown**.

**Light.**—A *flashing red* light is exhibited at an elevation of 30 feet (9<sup>m</sup>1), from a concrete pillar, situated on the south extreme of Renshaw Island.

**Clark Island** is situated on the northern side of the ship channel, and about 400 yards (365<sup>m</sup>0) from the mainland, from which it is separated by a narrow, but deep channel.

**Light.**—A *flashing red* light is exhibited, at an elevation of 30 feet (9<sup>m</sup>1), from a skeleton, steel tower, situated on the east end of Clark Island bordering the ship channel.

Between Hamilton Island and Glengarry Point, but on the south-east side of the ship channel, there are several islands, the north-eastern one being named **Little Hog Island**, with several small buildings and a wharf on it.

*Chart 1413*

**Stanley Island**, also on the southeast side of the channel, is situated a quarter of a mile west of Little Hog Island, a narrow channel running between them. On the north side of Stanley Island is a Government wharf, with a face 140 feet (42<sup>m</sup>7) in length; along the face is a depth of 14 feet (4<sup>m</sup>3). There is a large summer hotel on the island and several cottages.

**Light.**—A *flashing white* light is exhibited, at an elevation of 30 feet (9<sup>m</sup>1) from a skeleton, steel tower, situated on the northwest extreme of Stanley Island bordering the ship channel.

**Jacob Island** is situated on a bank extending southwestward from Stanley Island.

**Dickerson Island**, nearly 1½ miles east of Glengarry Point and on the south side of the ship channel, is separated from **Canal** and **Doden Islands** by a narrow channel. Northward from Dickerson Island lies an unbuoyed Seaway anchorage ground.

**Grass Island**, between Dickerson Island and Glengarry Point, is low and separated from the latter by the ship channel. A bank with less than 6 feet (1<sup>m</sup>8) extends northward from Grass Island to the edge of the Seaway Channel.

From Pointe Dupuis, the marshy irregular south shore of the lake trends in a general southwest direction 7 miles and then 3 miles nearly west to the mouth of the **Salmon River**. Half a mile north of Salmon River is **Round Island**, with three others farther east, the easternmost and largest being heavily wooded and known as **Christa-tee Island**, and is part of the St. Regis Indian reservation.

From the mouth of the Salmon River, the shore runs in a general westerly direction 6 miles to **St. Regis River**, which, with a depth at the entrance of 6 feet (1<sup>m</sup>8), empties into the St. Lawrence River close east of the village. This shore is fronted by marshy, shallow flats, on the outer edge of which are several low islands, separated from each other and the mainland shore by narrow and usually deep channels. Close to the north side of these islands runs a deep, although, in places, narrow unbuoyed channel, connecting with the ship channel southeast of Glengarry Point.

**St. Regis Village**, an Indian village, on the west side of the mouth of the St. Regis River, lies in Canadian territory. The International Boundary between Canada and the United States, runs southward of the village.

**St. Regis Island**, 100 feet (30<sup>m</sup>5) in height, 3 miles long northeast and southwest, and three-quarters of a mile in greatest breadth, occupies the middle of the St. Lawrence River between Glengarry Point and St. Regis Village.

*Chart 1413*

**Graveyard Point**, on the northwest shore of the river, is situated one mile westward of Glengarry Point, the shore between, lined with scattered cottages, being slightly curved inward.

**Farlinger Point** lies a mile westward of Graveyard Point, the shore between forming a deep indentation.

**Colquhoun Island**, in two parts, lies 600 yards (548<sup>m</sup>6) southwest of Graveyard Point. The lower portion of Colquhoun Island has a row of cottages along its southeast side. **The Crabs** are two similar, round, bushy islets, without trees, about 7 feet (2<sup>m</sup>1) high, lying on a bar, which, with the exception of the Seaway branch channel leading to Cornwall, connects Colquhoun Island to the northeast point of Cornwall Island. That nearest the latter is known as **First**; the middle one, known as **Second**, was removed during the construction of the Seaway branch channel; and that nearest Colquhoun Island, **Third Crab**.

**Pilon Island**, half a mile long, lies close southwest of Farlinger Point and is separated from The Crabs by the old disused ship channel. From **Grays Creek**, in the bight north of Pilon Island, the north shore of the St. Lawrence River trends southwesterly 2 miles to a point at St. Lawrence Park on the outskirts of the city of **Cornwall**. For details of wharves and facilities at Cornwall, the St. Lawrence River Pilot should be consulted.

**Light**.—A *fixed white* light is exhibited, at an elevation of 30 feet (9<sup>m</sup>1), from the west extreme of Pilon Island.

**Cornwall Island**, an Indian reservation in Canadian territory, is 5 miles long east and west, its eastern and western portions being a mile in breadth. A deep channel, through which the Seaway Channel leads, divides it from St. Regis Island and the United States mainland shore. It is separated from Massena Point on the west, by a narrow but deep channel, known as **Polly's Gut**.

**Bridges**.—A high level suspension bridge, under which there is a minimum vertical clearance of 120 feet (36<sup>m</sup>6), spans the Seaway Channel from the southwestern end of Cornwall Island to the United States mainland shore. A railway bridge crosses to Cornwall Island just west of Cornwall; it has been planked over so that automobiles may use it.

**Thompson Island upper range**.—*Fixed white* leading lights are exhibited from the west side of Thompson Island. The front light is exhibited, at an elevation of 32 feet (9<sup>m</sup>8), from a skeleton steel tower, situated 300 yards (274<sup>m</sup>3) westward of Thompson Island. The rear light is exhibited, at an elevation of 56 feet (17<sup>m</sup>1), from a similar structure, 2,400 feet (731<sup>m</sup>5) from the front light. The lights in line, bearing 059° lead from the intersection of the Butternut Island range, between Renshaw and Stanley Islands.



## Chart 1413

**Seaway Channel.**—From abreast light-buoy, 105F, southward of Hamilton Island, the ship channel is 450 feet (137<sup>m</sup>2) wide and leads between Renshaw and Stanley Islands in a 239° direction for just over 2 miles, to a position southward of Clark Island. The north limit of the channel is marked by two red light-buoys, showing *flashing red* lights, a red spar buoy and the light-beacons situated on Renshaw and Clark Islands, already described. The south limit of the channel is marked by black light-buoys, 105F and 119F, showing *quick flashing green* lights moored at the northeastern and southwestern limits of the reach, respectively, a black spar buoy, a black light-buoy, showing a *flashing green* light and the light previously described, situated on Stanley Island.

Abreast light-buoy, 119F, the Seaway Channel extends in a 263° direction for one mile and is marked on the north limit by a red spar buoy and a red light-buoy, 122F, showing a *quick flashing red* light at the west extremity of the reach. The south limit is marked by black spar buoy, 121F.

**Leading lights.**—*Fixed white* leading lights are exhibited from the eastern end of Cornwall Island. The front light is exhibited, at an elevation of 58 feet (17<sup>m</sup>7), from a light structure situated on the northeast extremity of Cornwall Island. The rear light is exhibited, at an elevation of 82 feet (25<sup>m</sup>0), from a similar structure, 2,000 feet (609<sup>m</sup>6) from the front light. The lights in line, bearing 241°, lead northward of St. Regis Island to the intersection of the Colquhoun Island range.

Abreast light-buoy, 122F, the channel alters to 241° for a distance of about 3½ miles on the line of the Cornwall Island range. The north limit of the channel is marked by a red spar buoy, a red light-buoy, 128F, showing *flashing red* light, moored southward of Glengarry Point and red light-buoy, 134F, showing a *flashing red* light moored southward of Colquhoun Island East. A red and black light-buoy, 136F, showing a *quick flashing white* light, moored 600 feet (182<sup>m</sup>9) southward of Colquhoun Island marks the southeast limit of the branch channel leading to Cornwall at its intersection with the Seaway Channel. Red light-buoy, 138F, showing a *flashing red* light, moored south-southeastward off **First Crab**, marks the northwestern limit of the above reach.

The south limit of the channel is marked by a black spar buoy and two black light-buoys, 133F and 137F, showing *flashing green* lights.

**Leading lights.**—*Fixed green* leading lights are exhibited from close eastward of the **Raquette River** mouth. The front light is exhibited, at an elevation of 28 feet (8<sup>m</sup>5), from a white skeleton tower with an orange triangular daymark, on the shore close eastward of the Raquette River mouth. The rear light is exhibited, at an

### Chart 1413

elevation of 43 feet (13<sup>m</sup>1), from a similar structure, 1,000 feet (304<sup>m</sup>8) from the front light. The lights in line, bearing 206°, lead from the intersection of the Cornwall Island range, between Cornwall and St. Regis Islands.

Abreast light-buoy 138F, the Seaway Channel alters southward between Cornwall and St. Regis Islands and follows around the south shore of Cornwall Island in United States waters.

The west limit of the channel is marked by red light-buoys, 140F and 142F, showing *flashing red* lights and a red spar buoy and a light-beacon showing a *flashing red* light situated on the southeast extreme of Cornwall Island. These last mentioned aids are temporary until such time as the channel has been widened by removing about 350 feet (106<sup>m</sup>7) of the southeast portion of Cornwall Island.

The east limit of the channel is marked by three black light-buoys, showing *flashing green* lights.

**Steering light.**—A *fixed white* directional steering light is exhibited, at an elevation of 35 feet (10<sup>m</sup>7), from a light structure situated on the east side of the Third Crab. Eastbound vessels should bring the steering light ahead and the Raquette range lights in line astern, when proceeding between Cornwall and St. Regis Islands.

**Leading lights.**—*Fixed green* leading lights are exhibited at St. Regis. The front light is exhibited, at an elevation of 28 feet (8<sup>m</sup>5), from a white, skeleton tower with an orange triangular daymark, situated on the shore westward of St. Regis. The rear light is exhibited, at an elevation of 45 feet (13<sup>m</sup>7), from a similar structure, 1,200 feet (365<sup>m</sup>7), from the front light. The lights in line, bearing 098°, lead westward from No. 5 light-buoy to a position northeastward of Raquette Point.

Two temporary spar buoys mark the north limit of the channel at the southeast extreme of Cornwall Island in addition to red light-buoy No. 6, moored one-quarter of a mile westward which exhibits a *flashing red* light.

**Steering light.**—A *fixed white* directional steering light is exhibited, at an elevation of 51 feet (15<sup>m</sup>5), from a position on the south shore of Cornwall Island, northward of Raquette Point. Westbound vessels should bring the steering light ahead, and the St. Regis range lights in line astern, between Nos. 5 and 9 light-buoys.

The south limit of the channel is marked by black light-buoys, 5, 9, and 9A, showing *flashing green* lights and light-buoy No. 7, showing a *flashing white* light.

*Chart 1414*

From a position abreast Raquette Point to the entrance to the **Snell Lock**, a distance of 3 miles, the channel follows the United States mainland shore closely. The average width of the channel is 500 feet (152<sup>m</sup>4), the narrowest section 400 feet (121<sup>m</sup>9) wide, lying between Raquette Point and No. 15 buoy. The channel is adequately marked on the starboard hand by red light-buoys showing *flashing red* lights and black light-buoys and light-beacons on the port hand, showing *flashing green* lights.

The suspension bridge leading from Cornwall to Massena crosses the Seaway Channel 1½ miles above Raquette Point. *Fixed red* lights are exhibited from the two main towers and a *fixed green* light is exhibited from the bridge over the centre of the channel.

**Cornwall Channel.**—Southward of Colquhoun Island West, the channel leading to the city of **Cornwall** branches westward from the Seaway Channel between **Pilon** and **Cornwall Islands**. The channel has a least width of 450 feet (137<sup>m</sup>2), a limiting depth of 14 feet (4<sup>m</sup>3), and is about 3 miles in length.

The north limit of the channel is marked by red light-buoys, 4C and 12C, showing *flashing red* lights and the south limit by black light-buoy, 5C, showing a *flashing green* light.

## CORNWALL TO ST. VINCENT.

*Chart 1414*

**Lake St. Lawrence**, an artificial pool, 27 miles long and 4 miles wide, was formed by the construction of a power dam, that extends from the north shore of the St. Lawrence close westward of the town of Cornwall to the northeastern extremity of Barnhart Island in United States waters, and the Long Sault Spillway Dam, that extends from the western extremity of Barnhart Island to the south shore of the St. Lawrence. Dykes have also been constructed on the north and south shores to contain the waters of Lake St. Lawrence.

The difference in elevation of Lake St. Francis and Lake St. Lawrence amounting to 87 feet, (26<sup>m</sup>5), is overcome by the Bertrand H. Snell and Dwight D. Eisenhower locks, situated at the eastern and western ends of the Wiley-Dondero Ship Channel, respectively.

**Snell Lock** (*Lat. 44°59' N., Long. 74°46' W.*), 766 feet (233<sup>m</sup>5) in length and 80 feet (24<sup>m</sup>4) wide, is entered about a quarter of a mile westward from the Grass River mouth.

The lower approach wall, 1,586 feet (483<sup>m</sup>4) in length, is situated on the north side of the channel. A northerly set may be experienced abreast the mouth of the Grass River at the lower end of the approach wall.

*Chart 1414*

Above the lock, a concrete approach wall, 1,638 feet (499<sup>m</sup>3) in length, is situated on the northern side of the channel.

**Lights.**—*Occulting red* lights, Nos. 20 and 24, are exhibited at an elevation of 28 feet (8<sup>m</sup>5), from white poles with red and white triangular daymarks, situated at the eastern and western extremities of the lower and upper approach walls, respectively. *Occulting green* lights, No's 21 and 23, are exhibited at an elevation of 28 feet (8<sup>m</sup>5) feet, from white poles with black and white square-shaped daymarks, situated at the eastern and western extremities of the lock entrance wall, respectively, on the south side of the channel.

Snell Lock and the upper and lower approach walls are illuminated at night.

The **Wiley-Dondero Ship Channel**, with a least width of 450 feet (137<sup>m</sup>2), and about 3½ miles in length, has been cut across the United States mainland. The channel limits are well marked by red nun buoys and light-beacons, showing *flashing red* lights on the north side, and black can buoys and light-beacons, showing *flashing green* lights on the south side.

A small craft marina, is situated in an expansion of the channel, about a quarter of a mile westward of Snell Lock.

Mooring cells are situated on the south side of the channel, one mile westward of Snell Lock. Two *quick flashing white* lights mark the eastern and western extremities of the mooring cells, respectively.

Mooring cells have been established on the south side of the channel, 1¼ miles below the entrance to the Eisenhower Lock. A *quick flashing white* light is situated on the western extremity of the mooring cell and a *flashing green* light on the eastern extremity.

Overhead power transmission lines, with a minimum vertical clearance of 120 feet (36<sup>m</sup>6), cross the Wiley-Dondero Channel, from the power house on **Barnhart Island**, one mile above Snell Lock.

The **Eisenhower Lock**, 766 feet (233<sup>m</sup>5) in length, and 80 feet (24<sup>m</sup>4) wide, has a lower approach wall, 1,638 feet (499<sup>m</sup>3) in length, situated on the northern side of the channel. The upper approach wall, 1,438 feet (438<sup>m</sup>3) in length, extends from the western entrance to the lock on the northern side of the channel.

A road tunnel, from the town of **Massena** to the power station on **Barnhart Island**, leads under the Eisenhower Lock.

**Lights.**—*Occulting red* lights, Nos. 34 and 38, are exhibited at an elevation of 28 feet (8<sup>m</sup>5), from white poles with red and white triangular daymarks, situated at the eastern and western extremities of the lower and upper approach walls, respectively. *Occulting green* lights, Nos. 35 and 37, are exhibited at an elevation of 28 feet (8<sup>m</sup>5), from white poles, with black and white square-shaped daymarks,



*Chart 1414*

situated at the eastern and western extremities of the lock entrance wall, respectively, on the south side of the channel.

The Eisenhower Lock and approach walls are illuminated at night.

The International boundary, between Canada and the United States, irregular in direction, extends from the middle of the Cornwall-Barnhart Island power dam, northward of Barnhart, Long Sault and the Croil Islands.

**Woodlands Island**,  $1\frac{3}{4}$  miles in length, and about 36 feet (11<sup>m</sup>0) high, lies about a quarter of a mile northward from the larger **Croil Island** in Canadian waters, and is connected to the mainland by a highway bridge.

A chain of small islands, **Fraser, Hoople, Dickinson, Heriot, Vankoughnet, Philpotts, Macdonell, Mille Roches, and Moulinette Islands**, extend eastward from Woodlands Island, thence northward, and are connected by highway bridges and causeways under the collective title of The Long Sault Parkway. A marina, containing an anchorage for small craft, wharves and other facilities, is situated northward of Mille Roches Island at the town of **Long Sault**.

**Sheek Island, Bergin Island** and an unnamed island, lie on a shoal bank 2 miles in length, situated one mile southeastward from Moulinette Island. A small group of islets are situated at the western and eastern ends of the shoal bank. A channel containing from 5 to 14 fathoms (9<sup>m</sup>1 to 25<sup>m</sup>6), the former **Bergin Lake**, leads northward of the shoal area, and the main channel leading to the power dam, leads southward between Barnhart and Sheek Islands.

**Caution.**—In poor visibility, mariners should keep a sharp lookout for trash booms, that have been laid to collect floating debris and extend across many of the channels leading to the power and spillway dams.

Above the Eisenhower Lock, the **Wiley-Dondero Canal Reach**, 450 feet (137<sup>m</sup>2) wide, extends in a west-southwesterly direction for 7 miles southward of the Long Sault and Croil Islands. The channel limits are well marked by red nun buoys and light-beacons, showing *flashing red* lights on the north side, and black can buoys and light-beacons, showing *flashing green* lights on the south side.

Mooring cells are situated on the south side of the channel,  $1\frac{1}{2}$  miles westward of Eisenhower Lock. A *quick flashing white* light is exhibited from the eastern cell, and a *flashing green* light is exhibited from the western cell.

Southward from the channel, abreast the southeastern extremity of Long Sault Island, is situated the T-shaped wharf of the Massena Oil Terminals.

*Chart 1414*

The **Massena Power Canal** extends in a southeasterly direction from the lake, half a mile southwestward of the Massena Oil Terminal wharf. A boat ramp, a road bridge, and a control dam are situated at the entrance to the canal, and a power dam at its juncture with the Grass River,  $2\frac{1}{2}$  miles downstream.

**Anchorage area.**—An anchorage area, with 8 to 14 fathoms ( $14^m6$  to  $25^m6$ ) of water, lies southward of the western Croil Island, and northward of the main channel.

Abreast the western extremity of the larger Croil Island, the ship channel leads southwestward to pass between Cat Island and the United States mainland shore.

*Chart 1415*

**Cat. Island**, (Lat.  $44^{\circ}57' N.$ , Long.  $75^{\circ}01' W.$ ), 500 feet ( $152^m4$ ) in length and about 6 feet ( $1^m8$ ) high, is situated on **Cat Island Shoal**, a shallow bank three-quarters of a mile in length, with depths of less than 3 fathoms ( $5^m5$ ). A shoal patch, with less than 6 feet ( $1^m8$ ) over it, lies 500 feet ( $152^m4$ ) northeastward of Cat Island.

The southeastern limit of Cat Island Shoal, is marked by light-beacon, No. 58, carrying a red and white triangular daymark, fitted with a radar reflector, and showing a *flashing red* light.

Red light-buoy, No. 60, showing a *flashing red* light, marks the southern edge of the shoal, southwestward of Cat Island.

**Wilson Hill Island**, 50 feet ( $15^m2$ ), high, and **Bradford Island**, about 20 feet ( $6^m1$ ) high, lie close to the United States mainland shore, to which they are connected by dykes. The islands form part of a wildlife refuge area.

Light-beacons, No's 63, 65 and 71, with black and white square-shaped daymarks, showing *flashing green* lights, mark the northerly points of the above islands at the limit of shoal water.

Black can buoys, No's 61 and 67, mark the south limit of the channel abreast Wilson Hill Island.

**Anchorage area.**—An anchorage area, bounded on the east by Steen and Cat Island Shoals, on the north by Ault Island, and on the west by Weaver Shoal, extends northward from the Seaway Channel. There are depths of from  $5\frac{1}{2}$  to 16 fathoms ( $10^m1$  to  $29^m3$ ) within the anchorage area.

**Weaver Shoal**, with 9 feet ( $2^m7$ ) of water, lies half a mile eastward of **Cook Point**.

The **Crysler Memorial Mound**, conspicuous from southward, erected to commemorate the Battle of Crysler's Farm, in 1813, is

## Chart 1415

situated half a mile northwestward of Cook Point. **Upper Canada Village**, containing many relics of that period, lies within the Memorial Park surrounding the monument.

From Cook Point to Iroquois Lock, 14 miles distant, the channel has an average width of 600 feet (182<sup>m</sup>9), with greater widths at turns in the channel. The channel follows the north shore of the St. Lawrence, mainly in Canadian waters.

Between Cook Point and **Macdonald Point**, 3 miles southwestward, the north limit of the channel is marked by three light-beacons, showing *flashing red* lights, and two red light-buoys, showing *quick flashing red* lights.

**Chrysler Shoal**, with a least depth of 13 feet (4<sup>m</sup>0), is situated in midstream, one mile southwestward of Cook Point. The south limit of the Seaway channel is marked by a light-beacon, showing a *flashing white* light at the northern extremity of Chrysler Shoal.

**Goose Neck Island Shoals**, a group of shoals having less than 6 feet (1<sup>m</sup>8) of water over them, are situated in midstream about a quarter of a mile southeastward of Macdonald Point. An islet is situated on the northeastern shoal, the northern extremity of which, at the south limit of the Seaway channel, is marked by a light-beacon showing a *flashing green* light. The south limit of the Seaway channel is also marked by a **black can light-buoy**, showing a *flashing green* light, and a light-beacon, No. 79, showing a *quick flashing white* light, situated at a turn in the channel abreast Macdonald Point.

From Macdonald Point to **Doran Point**, 1½ miles southwestward, the Seaway channel follows the northern shore closely. Two red conical buoys, and a light-beacon, showing *flashing red* lights, mark the north limit of the channel, and light-beacon, No. 81, showing a *flashing green* light, situated abreast the northwestern extremity of Doran Shoal, the south limit.

**Doran Shoal**, with a depth of 6 feet (1<sup>m</sup>8), lies a quarter of a mile southeastward of Doran Point, in midstream.

The **Murphy Islands**, three in number, about 15 feet (4<sup>m</sup>6) high, are, in effect, one island, as there is no navigable passage between the islands. The northern extremity of the main island close southward of the Seaway channel, is marked by a light-beacon, showing a *flashing green* light.

The town of **Morrisburg**, with a population in 1956, of 2,131, is situated on the north shore of the St. Lawrence, one mile above Doran Point. The United Church, situated on the waterfront and the red-and-white-striped water tower, behind the town, are conspicuous.

The submerged piers of the former **Rapide Plat Canal** entrance, lie shoreward of red light-buoy, No. 86, which exhibits a *flashing red* light from a position 300 feet (91<sup>m</sup>4) northward of the Seaway channel.

### Chart 1415

From Doran Point, the Seaway Channel leads northward of the Murphy Islands and **Murphy Shoal**, lying close westward; thence between Canada Island on the north, and the Clark Islands on the south.

**Canada Island**, grass-covered and about 20 feet ( $6^m1$ ), high, is steep-to on the south side. A light-beacon, No. 88, showing a *flashing red* light, is situated on the southern extremity of the island.

The grass-covered **Clark Islands**, about 4 feet ( $1^m2$ ) high, lie close southward of the channel, on a shoal bank, with less than 3 fathoms ( $5^m5$ ).

The south limit of the channel is marked by two black can buoys, No's. 87 and 89, abreast Murphy Shoal and Clark Islands, respectively.

**Ogden Island**, wooded, about  $2\frac{1}{2}$  miles long, and 36 feet ( $11^m0$ ) high, lies in an expansion of the river between **Mariatown** on the north shore, and **Waddington** on the United States shore.

The Seaway Channel follows an irregular course northward of Ogden Island, and is marked on the north side by red light-buoys, T 92, T 96.2, T.96.4 and 98, showing *flashing red* lights, red light-buoy, T94, showing a *quick flashing red* light, and light-beacon, No. 96, showing a *flashing red* light. The eastern, northern and western limits of shoal water extending off Ogden Island, are marked by light-beacons, No's. 91, 93 and 97, respectively, showing *flashing green* lights, and the south limit of the Seaway Channel by black light-buoys, No's. 93.1, 93.3, and T 95, showing *flashing green* lights.

**Note.**—Buoys prefixed by the letter "T" are temporary buoys that will be relocated on completion of dredging operations.

A T-shaped wharf, the property of the Sun Oil Company, extends from the north shore northward of the western extremity of Ogden Island.

From Ogden Island to Iroquois Lock, a distance of 4 miles, the Seaway Channel maintains a minimum width of 600 feet ( $182^m9$ ), parallel to the north shore of the St. Lawrence.

**Buoyage.**—The north limit of the channel is marked by red light-buoys, No's. 100, 102, and T 104, showing *flashing red* lights, and red light-buoy, No. 108, showing a *quick flashing red* light marking the north limit of the approach to Iroquois Lock. The south limit of the channel is marked by black can buoys, No's. 99, 101, and 105, a light-beacon, No. 103, showing a *flashing green* light, and black light-buoys, No's. 107 and 109, showing *flashing green* lights.

**Anchorage area.**—An anchorage area for vessels awaiting passage through Iroquois Lock, with a least depth of 29 feet ( $8^m8$ ), lies eastward of black light-buoy, No. 107, the limits of which can best be seen from the chart.

**Iroquois Lock**, (Lat.  $44^{\circ}50'$  N., Long.  $75^{\circ}19'$  W.), 766 feet ( $233^m5$ ) in length, and 80 feet ( $24^m4$ ) wide, is contained between



*Chart 1415*

**Harkness Island** and **Iroquois Island**. The lower approach wall, 1,500 feet (457<sup>m</sup>2) in length, is situated on the west side of the entrance. A *fixed amber* light, No. 110, is exhibited from the northern end of the approach wall. The upper approach wall, 3,000 feet (914<sup>m</sup>4) in length, is situated on the east side of the entrance above the lock. A *flashing green* light, No. 111, is exhibited from the south end of the approach wall.

The lock and approach walls are illuminated at night.

A road leads over a bridge to Iroquois Island, and a lift bridge over the lower end of the lock, gives access to Harkness Island and the Control Dam.

The **Iroquois Control Dam** extends eastward from the northern extremity of Harkness Island to **Point Rockway** on the American shore.

The town of **Iroquois**, with a population in 1956 of 1,078, has been relocated one mile northward of Iroquois Lock to allow for the flooding of Lake St. Lawrence.

*Chart 1416*

Above Iroquois Lock, the channel leads in a southwesterly direction, passing to the southward of Toussaint Island.

**Toussaint Island**, about 50 feet (15<sup>m</sup>2) high and half a mile in length, lies about three-quarters of a mile above Harkness Island.

A red spar buoy, L4, marks the northern limit of the channel northeastward of Toussaint Island, and a black light-buoy, No. 113, showing a *quick flashing green* light, the south limit.

**Cardinal**, with a population of 1,994 in 1956, is situated on an island formed by the now disused **Galop Canal** which skirts its north side, about two miles above Toussaint Island. A foul area, with depths of less than 14 feet (4<sup>m</sup>3), extends for about 1½ miles northeastward of Cardinal. **Fraser Shoal**, with less than 6 feet (1<sup>m</sup>8) of water, lies in this area.

Eastward from Cardinal, the Seaway Channel, 600 feet (182<sup>m</sup>9) wide, is constricted to 300 feet (91<sup>m</sup>4) over a distance of about three-quarters of a mile.

**Lights.**—A *flashing red* light, No. 114, is exhibited, from a white concrete structure, situated on the southeast shore of Toussaint Island. A *flashing green* light, No. 115, is exhibited from a light-beacon, situated on **Sparrowhawk Point** about one mile southwestward from Toussaint Island. The south limit of the channel passes within 200 feet (61<sup>m</sup>0) of the shore at this point.

### Chart 1416

Between Toussaint Island and Cardinal, the north limit of the Seaway Channel is marked by four red light-buoys, showing *flashing red* lights, and the south limit by four black light-buoys, showing *flashing green* lights.

Above Cardinal, the ship channel extends southwestward through the northern portion of **Galop Island**. The southern portion of Galop Island, about 4 miles long, extends upstream from Cardinal and lies close to the U.S. mainland shore. The northern portion, less than a mile in length, lies on the north side of the Ship channel, separated from **Adams Island**, close northward, by **The Gut**.

The Seaway Channel maintains a minimum width of 450 feet (137<sup>m</sup>2) close along the north shore of the main Galop Island; thence, passing close southward of **Drummond Island** in a west-south-westerly direction. Between Cardinal and Drummond Island, the north limit of the channel is marked by nine red light-buoys, showing *flashing red* lights, and the south limit by seven black light-buoys, showing *flashing green* lights. A light beacon, No. 121, showing a *flashing green* light, is situated on the northwest shore of Galop Island, 200 feet (61<sup>m</sup>0) southward of the channel.

Northward of Drummond Island, lies the **North Channel**, part of the now disused Galop Canal system. **Spencer Island** lies close westward from Drummond Island, separated by the North Channel. A causeway connects Spencer Island to the mainland, and a breakwater extends southward and westward from the southern entrance of Spencer Island. **Chimney Island** lies about a quarter of a mile southward from Drummond Island in U.S. waters.

A light-beacon, No. 126, showing a *flashing red* light, is situated on the south end of the breakwater extending from Spencer Island.

**Chimney Point**, (Lat. 44°44' N., Long. 75°27'W.) is a prominent projection on the United States shore, situated half a mile southwest of **Chimney Island**. The numerous and prominent buildings of the St. Lawrence State Hospital occupy this point.

A high, level suspension bridge, under construction 1959, with a minimum vertical clearance of 120 feet (36<sup>m</sup>6), extends from the western side of Chimney Point to **Johnstown** on the Canadian shore. The channel, 650 feet (198<sup>m</sup>1) wide at this point, passes between the main piers situated about 1,150 feet (350<sup>m</sup>5) apart.

Northward and westward from Chimney Island, the Seaway Channel is constricted to a width of 300 feet (91<sup>m</sup>4). This section of the channel is marked on the south by two black light-buoys, L31 and L35, showing *flashing green* lights, moored at the eastern and western limits of the constricted channel, respectively. The north limit of the channel between Drummond Island and the suspension bridge, about one mile upstream, is marked by two red light-buoys, showing *flashing red* lights, and a red light-buoy, fitted with a radar reflector, showing

### Chart 1416

a quick *flashing red* light. The south limit of the channel, westward of the above constricted area, is marked by a black spar buoy, and a black light-buoy, No. 129, showing a *flashing green* light, moored close below the bridge.

From the site of the bridge to Prescott, a distance of nearly 3 miles, the channel has a minimum width of 600 feet (182<sup>m</sup>9). A red light-buoy, No. 130, showing a *flashing red* light, moored at the northeastern end of a dumping ground, marks the south limit of a shoal area, with a least depth of 25 feet (7<sup>m</sup>6), situated a quarter of a mile eastward of the **Lower Lakes Grain Terminals**. Vessels approaching the Grain Terminals should pass eastward of the above light-buoy.

A red light-buoy, No. 132, showing a *flashing red* light, is moored on the north limit of the channel abreast Windmill Point on the Canadian shore, and marks the south extreme of a shoal area with a least depth of 25 feet (7<sup>m</sup>6).

A red spar buoy marks the north limit of the channel, half a mile northeastward of the above light-buoy.

A *flashing white* light is exhibited, at an elevation of 92 feet (28<sup>m</sup>0) from a white circular tower, situated on Windmill Point.

A black light-buoy, No. 131, showing a *flashing green* light, marks a 12-foot (3<sup>m</sup>7) patch lying southward of the channel, half a mile above the bridge, and a black light-buoy L41, showing a *flashing green* light, marks a 29-foot (8<sup>m</sup>8) patch on the south limit of the channel, east-southeastward from Windmill Point.

**Caution.**—A dumping ground, the western portion of which is enclosed by orange spar buoys, extends from the Lower Lakes Terminal to close westward of Windmill Point. Vessels should remain within the channel limits in this section of the river.

**Anchorage.**—Anchorage is prohibited in the section of the river off Prescott. Vessels should anchor westward of Prescott, as indicated on the chart.

**Prescott**, with a population in 1956 of 4,920, is situated on the northwest side of the St. Lawrence River, opposite the city of **Ogdensburg**, in New York State. A railway ferry, connecting the Canadian Pacific with the United States Railways, and passenger car-ferry, both operating throughout the year, cross the river to Ogdensburg.

For details of wharves and facilities at Prescott, and the Lower Lakes Grain Terminals, the St. Lawrence River Pilot should be consulted.

### Chart 1417

Above Prescott, the St. Lawrence, with an average width of one mile, extends southwestward 11 miles to Brockville on the north shore, and Morristown on the United States shore.

### Chart 1417

**Thousand Islands.**—The stretch of river, between Brockville and Cape Vincent, situated on the United States shore at the entrance to Lake Ontario, is thickly strewn with islands, large and small, with deep water channels between, known as the Thousand Islands.

From Prescott, the recommended channel extends in a  $223^{\circ}$  direction, 7 miles to a position abreast the village of **Maitland**, situated on the northwest shore.

**Buoyage.**—A black and white vertically-striped light-buoy, showing a *flashing white* light, short and long periods, is moored in midstream half a mile southeastward of Maitland Village.

A black can buoy, No. 135, is moored on the northern edge of **Catamaran Shoal**, which has a least dept of 12 feet ( $3^m7$ ), situated one mile above Maitland Village, and about a quarter of a mile southward of the recommended track.

**McNair and Murray Islands** in Canadian waters, and **Bogardus Island** in the United States waters, lie in midstream abreast the town of **Morristown**. **North McNair Shoal**, with a depth of 14 feet ( $4^m3$ ), lies 300 yards ( $274^m3$ ) northwestward of McNair Island. **South McNair Shoal**, with a least depth of 10 feet ( $3^m0$ ), lies 250 yards ( $228^m6$ ) southwestward of McNair Island.

From a position half a mile southward of Maitland, the channel leads in a  $233^{\circ}$  direction to pass between McNair Island and North McNair Shoal, at which point the channel is 400 feet ( $121^m9$ ) wide.

**Light.—Buoyage.**—A *flashing green* light is exhibited, at an elevation of 30 feet ( $9^m1$ ), from a light-beacon situated on the northwest extremity of McNair Island. A red light-buoy, No. 136, showing a *flashing red* light, is moored close southward of North McNair Shoal at the northern limit of the Seaway Channel. A white spar buoy marks the outer end of a submerged water intake at Brockville, about three-quarters of a mile above McNair Island.

**Brockville**, (*Lat.*  $44^{\circ}35' N.$ , *Long.*  $75^{\circ}41' W.$ ), with a population in 1956 of 13,885, is situated on the north shore of the river. The Ontario Hospital buildings, with a spire, three-quarters of a mile northeast of Brockville, stand on land 140 feet ( $42^m7$ ) high, and are conspicuous. For details of wharves and buoyage at Brockville, see page 131 of the St. Lawrence River Pilot.

**Light.**—A *flashing red* light is exhibited at an elevation of 8 feet ( $2^m4$ ) from the southwestern extremity of the Government break-water at Brockville.

**Brock Group** is the name given to a cluster of islands under various names, occupying the middle of the river, between Brockville and **Lily Bay**, about 3 miles southwestward. The northeastern island



Chart 1417

of the group south of Brockville Narrows, is called **Conran Island**, and is in Canadian waters. That at the upstream end, southeastward of the International Boundary, is known from the circumstance, as **American Island**.

**Brockville Narrows**,  $2\frac{3}{4}$  miles long, through which the Seaway Channel leads, extends from a short distance above Brockville, to Lily Bay. This section of the channel is practically straight, and has a least width of 425 feet (129<sup>m</sup>5); the north limit of the channel passes close southward of Skelton, Royal and Needles Eye Islands lights.

**Lights.**—A *flashing red* light is exhibited, at an elevation of 31 feet (9<sup>m</sup>4), from a red skeleton tower, situated on the southeast end of **Skelton Island**. A *flashing red* light is exhibited, at an elevation of 25 feet (7<sup>m</sup>6), from a red steel structure, situated on a shoal close southwestward of **Royal Island**. A *flashing red* light is exhibited, at an elevation of 28 feet, (8<sup>m</sup>5) from a light structure, situated on the southeastern end of **Needles Eye Island**. A *flashing red* light is exhibited, at an elevation of 28 feet (8<sup>m</sup>5), from a light-beacon situated on the eastern edge of **McDonald Point Shoal**, about 7 cables downstream from Needles Eye Island.

On the south side of the channel, a light-beacon, No. 141, showing a *flashing green* light, at an elevation of 28 feet (8<sup>m</sup>5), is situated on the northwest extremity of **McCoy Island**. A black spar buoy, moored close northward of the light-structure, marks the north limit of an area with less than the controlled depth of 27 feet (8<sup>m</sup>2). A *flashing green* light is exhibited, at an elevation of 28 feet (8<sup>m</sup>5), from light-beacon, No. 143, situated on the south limit of the channel, midway between McCoy and **Cockburn Island** three-quarters of a mile southwestward.

A *flashing green* light is exhibited, at elevation of 28 feet (8<sup>m</sup>5), from a light-beacon, No. 145, situated on the northwest side of **Stovin Island**.

**Buoyage.**—Temporary red light-buoys, T142 and T148, showing *flashing red* lights, are moored on the northern limit of the Seaway Channel, abreast Royal Island light-structure and **Hillcrest Point**, respectively. The buoys indicate areas yet to be dredged to the controlled depth of 27 feet (8<sup>m</sup>2).

A black light-buoy, No. 139, showing a *flashing green* light, marks the northern limit of a shoal area extending northeastward from Conran Island. The Seaway Channel passes 250 feet (76<sup>m</sup>2) northward of the light-buoy.

Two black spar buoys mark the western limit inside the Seaway Channel, of shoal areas extending westward from McCoy and Cockburn Islands.

### Chart 1418

Above Brockville Narrows, the river continues in a southwesterly direction to **Grenadier Island**, which lies in an expanded section of the river 10 miles upstream. There are numerous small islands and shoals, the positions of which can best be seen from the chart.

**De Wattville leading lights.**—The front light is exhibited from a white square structure on De Wattville Island at the northern entrance to Lily Bay, from a height of 30 feet (9<sup>m</sup>1). The rear light is shown from a red skeleton tower, at an elevation of 70 feet (21<sup>m</sup>3), situated on the mainland, 2 cables, 037½, from the front light. The lights are *fixed white*.

The rear light structure is not visible in line of range, only the lantern and a part of the watch room being visible over the tops of the trees.

From the head of Lily Bay, the Canadian shore runs in a general southwesterly direction, 5 miles, to **Whitney Point**. Thence, the shore extends 7 miles in the same direction, to Cook Point, abreast the highest point of Grenadier Island. The wooded shoreline is indented by several, small shallow bays.

From **Point Comfort** (Lat. 44°33' N., Long 75°42' W.), the American shore of the St. Lawrence trends southwestward 3½ miles to **Oak Point**; thence 4 miles south-southwestward to **Chippewa Point**, the northern entrance point to Chippewa Bay.

**Cole Ferry Shoal**, with 2 feet (0<sup>m</sup>6) of water, lies about one mile southward, and **Cole Shoal**, with 3 feet (0<sup>m</sup>9) of water, lies about one mile southwestward of Lily Bay.

Above the Brockville Narrows, the Seaway Channel leads southward for 3 miles, passing northward of Cole Ferry Shoal, and a group of shoals extending northward from Oak Point.

A 12-foot (3<sup>m</sup>7) shoal, situated on the north limit of the Seaway Channel, a quarter of a mile southeastward of Cole Shoal, is marked by light-beacon, No. 150, showing a *flashing red* light. A red spar buoy is moored close southward of an 18-foot (5<sup>m</sup>5) shoal on the north limit of the channel, and a red light-buoy, T152, showing a *flashing red* light, marks a 26-foot (7<sup>m</sup>9) spot on the northern edge of the channel, northward of Oak Point.

The south limit of the channel is marked by light-beacon, No. 147, situated on a 13-foot (4<sup>m</sup>0) shoal, light-beacon, No. 149, situated on the western extreme of Cole Ferry Shoal, and light-beacon, No. 151, which marks the northern extreme of the shoals extending northward from Oak Point. The three light-beacons show *flashing green* lights.

Westward from Oak Point, on the range of the De Wattville leading lights, the Seaway Channel alters southward, and extends in a 193° direction for 2¼ miles, between **Bay State Shoal** and **Cross Over**

### Chart 1418

**Island** on the starboard hand, and **Whaleback Island** and the American shore on the port hand. The west limit of the channel is marked by two light-beacons and red light-buoy, No. 162, showing *flashing red* lights. The east limit of the channel is marked by two black can buoys and a black light-buoy showing a *flashing green* light. Abreast Whaleback Island, the channel is constructed to a width of 500 feet (152<sup>m</sup>4), by a shoal extending eastward from light-beacon, No. 156.

**Amateur Islands** (Lat. 44°29' N., Long. 75°48' W.), a group of seven small islands, lie partly in Canadian, and partly in American waters, northward of Chippewa Point.

The **Indian Chief Islands** are situated close southward of the southernmost island of the above group, and a group of shoals and scattered small islands extend southwestward to Grenadier Island.

Abreast red light-buoy, No. 162, the channel alters southwestward for a distance of 3½ miles, maintaining a distance of less than a cable from the United States mainland shore to Chippewa Point, and passing eastward of **Dark Island** and the group of small islands extending northeastward from the northern extremity of Grenadier Island.

The channel is 600 feet (182<sup>m</sup>9) wide over this section, and is marked on the northwest by three red conical buoys and a light-beacon, showing a *flashing red* light, situated on the extremity of a shoal extending southward from Dark Island.

Light-beacons, Nos. 163 and 165, situated on the U.S. mainland shore, one mile northeastward of Chippewa Point, and on the northern extremity of **Superior Shoal**, lie about 100 feet (30<sup>m</sup>5) eastward of the channel limit, and show a *flashing green* light and a *flashing white* light, respectively. A black light-buoy, No. 167, showing a *flashing green* light, marks the southeast channel limit abreast Dark Island, and black light-buoy, No. 173, showing a *flashing green* light, the north limit of **Haskell Shoal** eastward of the northern extremity of Grenadier Island.

From a position abreast Haskell Shoal, the Seaway Channel extends in a 210° direction for 1¼ miles, thence 206° for 1½ miles, passing between **Ironsides Shoal** and **Ironsides Island**, a high and densely wooded island. The west limit of the channel is marked by red light-buoy, No. 172, showing a *flashing red* light, moored westward from Haskell Shoal, and a red conical buoy marking **Empire Shoal**, with a least depth of 18 feet (5<sup>m</sup>5), lying three cables northeastward of **Sisters Island**. In addition, light-beacons, Nos. 178 and 180, showing *flashing red* lights, are situated on the north extreme of Sisters Island and Ironsides Shoal, respectively. The east limit

*Chart 1418*

of the channel is marked by black light-buoy, No. 177, showing a *flashing green* light, moored 150 yards ( $137^m2$ ) northward of **Third Brother Island Shoal**, and a light-beacon, No. 179, showing a *flashing green* light, situated on the southwestern extremity of Ironsides Island, 200 feet ( $61^m0$ ) eastward of the channel.

A disused light-tower is situated close southward of the present light-structure on Sisters Island, and a disused light-tower marks Third Brother Island Shoal.

A black spar buoy marks the limit of shoal water extending northwestward from Sisters Island.

Southward of Ironsides Shoal, the **Canadian Middle Channel** branches westward to pass southward of Grenadier Island, through the **Raft Narrows**, and on to open water between Wolfe and Howe Islands.

The channel has a least width of 300 feet ( $91^m4$ ) and a least depth of 20 feet ( $6^m1$ ). For directions, *see* page 164, Rockport to Kingston by Middle Channel.

*Chart 1419*

Above Ironsides Island, the Seaway Channel follows the U.S. mainland shore in a southwesterly direction through the Upper Narrows, contained by Wellesley Island and the mainland shore close southward.

The entrance to **Goose Bay**, suitable only for small craft, lies  $1\frac{1}{2}$  miles south-southwestward from Ironsides Island. The entrance is encumbered by three small islands.

From Goose Bay, the New York shore continues in the same direction  $3\frac{1}{2}$  miles to the summer resort of **Alexandria Bay**. For  $1\frac{3}{4}$  miles southwestward of Goose Bay, the shore is fronted by several islands known as **Excelsior Group**, between which, and **Summerland Group**, a third of a mile northwest of it, is the Seaway Channel. **Resort Island** (Lat.  $44^{\circ}22' N.$ , Long.  $75^{\circ}54' W.$ ), about 15 feet ( $4^m6$ ) high, at the upper end of Excelsior Group, and nearest to the ship's track, has a handsome villa with pagoda-type roof erected on it, and is a conspicuous feature on the course between Sister Island light and Alexandria Bay. The highest islands of the Summerland Group are from 40 to 60 feet ( $12^m2$  to  $18^m3$ ) high. The wharves at Alexandria Bay are available for boats of 11-foot ( $3^m4$ ) draught, and are easily approached from the channel.

**Alexandria Bay** possesses several hotels, the southwestern one, the Thousand Islands hotel, having a very conspicuous tower, somewhat rounded at the top. The central, principal tower of the Crossman hotel is square.

**Wellesley Island**, in United States waters, extends 8 miles southwest from Rockport on the Canadian shore, and is separated from



## Chart 1419

the southeast shore by the Seaway Channel. The southeastern portion of Wellesley Island rises to a height of 144 feet (43<sup>m</sup>9). **Lake of the Isles** on the northeast, and **Eel Bay** on the southwest, both shallow, almost divide the island. There are numerous summer cottages on the island and **Westminster Park**, a summer resort, situated on the northeast extremity of the island, has two wharves, the deeper, having a depth of 8½ feet (2<sup>m</sup>5) alongside. From the latter, islands, most of which have summer cottages on them, extend northeastward 1¾ miles, those nearer Wellesley Island being named **Manhattan Group**.

A ferry runs from Alexandria Bay to Westminster Park, **Rockport** and Thousand Islands Park at the southwestern extremity of Wellesley Island.

**Lights. — Buoyage. — Submarine cable.** — From Ironsides Island, the Seaway Channel leads southwestward, passing northward of **Inner Ironsides Shoal**, an 8-foot (2<sup>m</sup>4) patch, the north extreme of which is marked by black can buoy, No. 181, and southward of **Whiskey Island Shoal**, marked by light-beacon, No. 182, showing a *flashing red* light, to a position midway between the Excelsior Group and Summerland Group.

A *flashing white* light is exhibited, at an elevation of 34 feet (10<sup>m</sup>4) from a black skeleton tower, situated on the northern entrance of **Excelsior Shoals**, 200 feet (61<sup>m</sup>0) eastward of the channel. Black light-buoy, No. 185, showing a *flashing green* light, is moored on the south limit of the channel, westward from the Excelsior Group. Submarine cables, leading from the mainland shore to the Summerland Group, cross the channel close southward of the above light-buoy.

From a position westward of the Excelsior Group, the channel leads between **Resort** and **Deer Islands**, 2¼ miles to **Sunken Rock Shoal**, situated a quarter of a mile northward of Alexandria Bay. The channel has a minimum width of 500 feet (152<sup>m</sup>4) in this section and is not buoyed. Three light-beacons, showing *flashing red* lights, indicate the limits of navigable water, situated on the southeast extreme of Deer Island, on the northwest channel limit southwestward of Sunken Rock Shoal, and on the south extreme of Pullman Shoal, half a mile southwestward of Alexandria Bay, respectively. Light-beacons, showing *flashing white* lights, are situated on an islet one-quarter of a mile southeastward of Deer Island, and on the southwest extremity of Sunken Rock Shoal.

*Flashing green* lights are exhibited from light-beacons southeastward of the channel, situated on a shoal 1½ cables northeast of Sunken Rock Shoal, and on the northwest side of **Cherry Island**.

Submarine cables are laid across The Narrows from the mainland to Wellesley Island between Alexandria Bay and Cherry Island.

Between Alexandria Bay and **Thousand Island Park**, a summer resort at the southwestern extremity of Wellesley Island, the Seaway Channel has a minimum width of 450 feet (137<sup>m</sup>2).

*Chart 1419*

For a mile above Alexandria Bay, there extends a chain of islands, all on the south side of the channel. The uppermost one is **Comfort Island**, and southwest for 200 yards (182<sup>m</sup>9) from it extends a shoal with 6 feet (1<sup>m</sup>8) of water over it.

Between **Fishers Landing**, and **Fineview** on Wellesley Island, the southwest entrance of Upper Narrows, there is a cluster of islets, the western of which is known as **Rock Island**.

**Susan** and **Frederick Islands**, the northeastern islets of the group, lie half a mile from Fishers Landing, and 200 yards (182<sup>m</sup>9) northwest of a projecting point from the main shore.

Northwest 300 yards (274<sup>m</sup>3) from this point is **Niagara Shoal**, with 3 feet (0<sup>m</sup>9) of water on it, marked by a black light-buoy No. 211, showing a *flashing green* light.

The Thousand Islands high-level suspension bridge, with an 800-foot (243<sup>m</sup>3) main span, and a vertical clearance of 150 feet (45<sup>m</sup>7), crosses the **Upper Narrows** from **Collins Landing** to Wellesley Island. Three *fixed green* lights are exhibited from the main span above the channel, and *fixed red* lights are shown from the piers.

**Lights.—Buoyage.**—*Flashing red* lights are shown from light-beacons situated northward of the channel at **Oswegatchie Point**, an islet close northward of the channel, three-quarters of a mile above Thousand Islands Bridge, and the south extreme of **Granite State Shoal**. A *quick flashing red* light is shown from a light-beacon close eastward of Seven Island, and an *occulting red* light from a light-beacon about a quarter of a mile downstream from Brown Bay. A red nun buoy is moored southwest of Seven Isles Shoal and a red light-buoy, showing a *flashing red* light, marks the south limit of a shoal area southward from Thousand Island Park.

Southward from the channel, *flashing green* lights are exhibited from light-beacons, situated on **Stoney Crest Island** midway between Cherry and Comfort Islands, on the west end of **Comfort Island Shoal** southwest of Comfort Island, on the north extreme of a shoal extending northward from **Wild Rose Island**, off the southwest end of **Holiday Island** one-quarter of a mile below the Thousand Island Bridge, in 10 feet (3<sup>m</sup>0) of water at the limit of the channel one-quarter of a mile above Thousand Island Bridge, and in 24 feet (7<sup>m</sup>3) of water northeastward from Rock Island.

A black light-buoy, No. 205, showing a *flashing green* light, is moored on the south edge of the channel abreast **Point Vivian**, and a similar buoy, No. 215, showing a *quick flashing green* light, is moored southwestward of Rock Island on the channel limits. A black can buoy, showing a *flashing white* light, is moored northeastward of an 18-foot (5<sup>m</sup>5) patch, 1¼ miles southwestward of Rock Island.

*Charts 1419, 1420.*

From **Fishers Landing**, the shore trends in a general south-westerly direction  $4\frac{1}{2}$  miles to **Clayton**. A wharf at Clayton has depths of from 6 to 18 feet ( $1^m8$  to  $5^m5$ ) alongside. A ferry operates from Clayton to Thousand Island Park and Gananoque. Clayton is a station of the New York Central Railway.

**Washington Island** lies a quarter of a mile east of Clayton.

A pier, carrying an oil pipeline, extends northward from the north shore of Washington Island. A *flashing green* light is exhibited at an elevation of 15 feet ( $4^m6$ ), from a black post off the end of the pier.

**Round Island**, on which is situated the summer resort, Round Island Park, lies one mile northeast of Clayton.

A breakwater, 200 yards ( $182^m9$ ) in length, extends in a north-east direction from the island. The steamer pier is on the middle of the northwest side of Round Island, between which and **Little Round Island**, close northward, is a depth of 14 feet ( $4^m3$ ). Westward from Little Round Island, lie three small islands, the outer one being named **North Colburne**, which is steep-to on its northern side.

**Grindstone Island**, lying two miles northward from Clayton, in U.S. waters, is a ragged island  $5\frac{3}{4}$  miles long, northeast and south-west, by  $2\frac{1}{2}$  miles in width, near its western end, where it rises to a height of 120 feet ( $36^m6$ ). Southward from Wellesley Island, lie **Grenell, Murray, Picton, Bluff, and Maple Islands**, separated from Grindstone Island by a deep unbuoyed channel.

Westward from Rock Island, the Seaway Channel extends in a  $239^\circ$  direction, about  $2\frac{1}{2}$  miles to a position northward of Round Island, thence  $229^\circ$  for about one mile between North Colburne Island and Chapman Shoal, to a position northward of Washington Island, whence the channel alters to pass southward of the **Calumet Islands** and **Calumet Shoal**, and northward of **Bartlett Point**.

The north limit of the channel is marked by two red light-buoys, showing *flashing red* lights, moored 450 yards ( $411^m5$ ) northward of Little Round Island, and 700 yards ( $640^m1$ ) northwestward of Washington Island, respectively. A *flashing white* light is exhibited, from a red skeleton tower, situated on **Chapman Shoal**, and a *flashing red* light is exhibited, from a light-beacon, situated on Calumet Shoal, close northward of the channel limit.

The south limit of the channel is marked by a black can buoy, moored on the western edge of a shoal area, extending from North Colburne Island, and a black light-buoy, showing a *flashing green* light, moored northward of an 18-foot ( $5^m5$ ) patch, 400 yards ( $365^m8$ ), southward of Calumet Shoal. A light-beacon, showing a *flashing green* light, is situated on the western end of North Colburne Island, close southward of the channel limits.

*Charts 1419, 1420*

A *fixed green* light is exhibited, at an elevation of 35 feet (10<sup>m</sup>7), from a black skeleton tower on Bartlett Point.

**Wolfe Island**, in Canadian waters, has a total length of 18 miles. The northeast extremity, known as **Quebec Head**, is separated from **Blanket Shoals** by **Wolfe Island Cut**, a buoyed channel, 300 feet (91<sup>m</sup>4) wide, and 16 feet (4<sup>m</sup>9) in depth, connecting the Canadian Middle Channel with the Seaway Channel.

**Light**.—A *fixed white* light is exhibited, at an elevation of 37 feet (11<sup>m</sup>3), from a white square building on Quebec Head.

From Quebec Head, the coast of Wolfe Island trends southeasterly, a third of a mile to **Beauvais Point**. Thence, the coast turns abruptly, and runs, with an outward curve, 8 miles to **Bayfield Island** in the mouth of a shallow bight, 1½ miles in diameter, named **Bayfield Bay**, from the head of which a narrow canal, formerly led to **Barrett Bay**, on the opposite coast of the island.

From Bartlett Point, the United States mainland shore trends southwestward 13 miles to the town of **Cape Vincent**.

**Linda Island**, 5½ miles southwestward of Bartlett Point, is a small island separated from the shore by a boat passage 150 yards (137<sup>m</sup>2) wide. Between Bartlett Point and Linda Island the shore is fairly regular, with good water close in.

A shoal, with 11 feet (3<sup>m</sup>4) of water on it, lies 257°, three-quarters of a mile from the southwest end of Linda Island.

A black light-buoy, showing a *flashing green* light, marks the northern edge of the shoal.

The water is deep close to this part of the shore, which rises to a height of 105 feet (32<sup>m</sup>0). The village of **Riverview**, on the west shore of **Mellen Bay**, lies 2¾ miles westward of Linda Island.

**Lights**.—A *flashing red* light is exhibited, at an elevation of 30 feet (9<sup>m</sup>1) from a red steel structure on **Banford Point**.

A *flashing green* light is exhibited, from a light-beacon, No. 229, situated on the shore, about 3 miles southwestward of Bartlett Point.

A *flashing white* light is exhibited, at an elevation of 33 feet (10<sup>m</sup>1), from a white skeleton tower on the north end of Linda Island.

From Bartlett Point, the Seaway Channel extends in a 246° direction, 6¼ miles between Wolfe Island and the United States shore. Northward of black light-buoy, No. 233, course should be altered to 263° for about 4 miles to pass between Carleton and Wolfe Islands.



*Chart 1477*

**Carleton Island**, (*Lat.*  $44^{\circ}11'N.$ , *Long.*  $76^{\circ}17'W.$ ), 60 feet ( $18^m3$ ) in height,  $2\frac{1}{3}$  miles long, east and west, and one mile wide, is situated southeast of Bayfield Island,  $9\frac{3}{4}$  miles westward from Clayton. A channel, 800 feet ( $243^m8$ ) wide, bounded on the south by the Feather Bed Shoals, and defined by two black spar buoys, leads southward of Carleton Island. This channel is suitable for vessels drawing less than 12 feet ( $3^m7$ ).

From Bayfield Island, and **Carpenter Point**, southwest of it, shoal water extends half a mile. From Bayfield Bay, the southeast coast of Wolfe Island trends southwest 4 miles, and easterly one mile, to a low projection named **Hickley Point**. The shallow indentation enclosed by Hinckley Point, and the coast westward, is called **Button Bay**. **Hinckley Flats Shoal**, with depths ranging from one to 13 feet ( $0^m3$  to  $4^m0$ ), extends from the point of that name, northeasterly nearly  $2\frac{1}{2}$  miles.

**Feather Bed Shoals**.—From Mellen Bay, the United States coast trends westerly  $2\frac{1}{3}$  miles, and then, a little more southerly, 3 miles to Cape Vincent. From this broad outward bend of the coast, a bank extends one mile, its western portion containing the **Roxy Islands**, being termed Feather Bed Shoals.

**Leading lights**.—**Buoyage**.—Leading lights are exhibited from Wolfe Island northward of Carleton Island. The front light is exhibited, at an elevation of 50 feet ( $15^m2$ ), from a skeleton tower with an orange daymark, situated two-thirds of a mile eastward of **Irvine Point**. The rear light is exhibited, at an elevation of 60 feet ( $18^m3$ ), from a similar structure, 1,000 feet ( $304^m8$ ), from the front light. *Fixed white* lights are shown from both structures, which in line, bearing  $035\frac{3}{4}^{\circ}$ , lead between Bayfield and Carleton Island to the intersection of the Bayfield Island range.

Leading lights are exhibited from Bayfield Island. The front light is exhibited, at an elevation of 28 feet ( $8^m5$ ), from a skeleton tower with an orange daymark, situated on the southeast side of Bayfield Island. The rear light is exhibited, at an elevation of 50 feet ( $15^m2$ ), from a similar structure, 1,750 feet ( $533^m4$ ) from the front light. *Fixed white* lights are shown from both structures, which in line, bearing  $345^{\circ}$  lead between Carleton Island and Hinckley Flats Shoal to the intersection of the Carleton Island range. In addition, a directional steering light is exhibited in an  $083^{\circ}$  direction from the rear light structure.

Leading lights are exhibited from Carleton Island. The front light is exhibited, at an elevation of 34 feet ( $10^m4$ ), from a white skeleton tower with a black and white daymark, situated on the southwest extremity of Carleton Island. The rear light is exhibited, from a similar structure, situated 1,000 feet ( $304^m8$ ) from the front

*Chart 1477*

light. An *occulting white* light is shown from the front light-structure, and a *fixed white* light from the rear. In line, bearing  $033^\circ$ , the lights lead between Feather Bed Shoals and Hinckley Flats Shoal to abreast the town of Cape Vincent.

A red light-buoy, No. 44T, showing a *flashing red* light, is moored off Bayfield Island, three-quarters of a mile,  $083^\circ$ , from the rear light-structure.

A red light-buoy, No. 238, showing a *flashing red* light, is moored on the Bayfield Island range about 150 yards ( $137^m2$ ) eastward of the shoal water extending from **Carpenter Point**.

A red conical buoy, No. 236, fitted with a radar reflector, marks the limit of shoal water eastward of Bayfield Island.

A red light-buoy, No. 240, showing a *flashing red* light, marks the northeast end of Hinckley Flats Shoal and three-quarters of a mile southeastward a black light-buoy, No. 243, showing a *flashing green* light, marks the northwest limit of Feather Bed Shoal.

The limit of shoal water extending off Carleton Island is marked by four black can buoys, fitted with radar reflectors, moored northward, northwestward, westward and southwestward, respectively, from the island.

**Directions.**—From close northward of black light-buoy, No. 233, steer  $263^\circ$  for four miles, keeping Bayfield rear light-structure ahead on this bearing. When within half a mile of red light-buoy, 44T, course should be altered slowly to  $215\frac{3}{4}^\circ$ , bringing the Irvine Point range in transit astern for a distance of  $1\frac{1}{4}$  miles. Abreast red light-buoy, No. 238, course is altered to  $165^\circ$  for a little over one mile, bringing the Bayfield Island range in line astern and the southwest extremity of the Roxy Islands ahead.

Abreast Carleton front light-structure, course should be altered slowly to starboard to bring the Carleton Island range in line astern, bearing  $033^\circ$ . Steer  $213^\circ$  for  $2\frac{1}{2}$  miles, to bring Cape Vincent abeam, from whence, course may be set to pass southward of Bear Point into Lake Ontario.

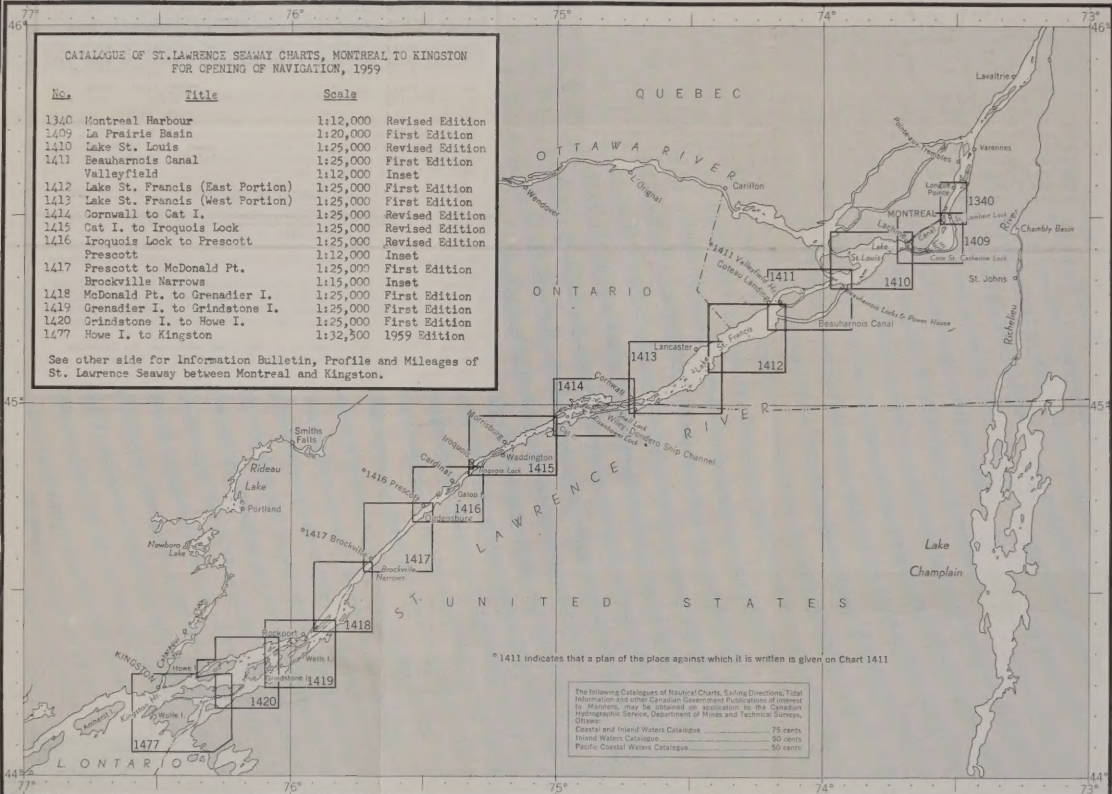
For details of the facilities available at Alexandria Point and Cape Vincent, together with a description of the channel westward into Lake Ontario, the St. Lawrence River Pilot should be consulted.



CATALOGUE OF ST. LAWRENCE SEAWAY CHARTS, MONTREAL TO KINGSTON  
FOR OPENING OF NAVIGATION, 1959

No.	Title	Scale	
1340	Montreal Harbour	1:12,000	Revised Edition
1409	La Prairie Basin	1:20,000	First Edition
1410	Lake St. Louis	1:25,000	Revised Edition
1411	Beauharnois Canal	1:25,000	First Edition
	Valleyfield	1:12,000	Inset
1412	Lake St. Francis (East Portion)	1:25,000	First Edition
1413	Lake St. Francis (West Portion)	1:25,000	First Edition
1414	Cornwall to Cat I.	1:25,000	Revised Edition
1415	Cat I. to Iroquois Lock	1:25,000	Revised Edition
1416	Iroquois Lock to Prescott	1:25,000	Revised Edition
	Prescott	1:12,000	Inset
1417	Prescott to McDonald Pt.	1:25,000	First Edition
	Brookville Narrows	1:15,000	Inset
1418	McDonald Pt. to Grenadier I.	1:25,000	First Edition
1419	Grenadier I. to Grindstone I.	1:25,000	First Edition
1420	Grindstone I. to Howe I.	1:25,000	First Edition
1477	Howe I. to Kingston	1:32,500	1959 Edition

See other side for Information Bulletin, Profile and Mileages of St. Lawrence Seaway between Montreal and Kingston.



\*1411 indicates that a plan of the place against which it is written is given on Chart 1411

The following Catalogues of Naval Charts, Sailing Directions, Tidal Information and other Canadian Government Publications of interest to Mariners, may be obtained on application to the Canadian Hydrographic Service, Department of Mines and Technical Surveys, Ottawa:	
Coastal and Inland Waters Catalogue	75 cents
Inland Waters Catalogue	50 cents
Pacific Coastal Waters Catalogue	50 cents





The Canadian Hydrographic Service with the co-operation of the United States Lake Survey and other St. Lawrence Seaway and Power Agencies is preparing a new series of 14 charts from Montreal Harbour west to Wolfe Island at Lake Ontario. These charts are to fulfill the seaway navigation requirements on its opening in 1959. Some of these charts will be issued as provisional editions pending the completion of the Seaway, power improvements and other construction works. Eventually, standard hydrographic surveys will be made, from which new standard navigation charts will be published to supersede the provisional editions.

Details of the Seaway charts are given on the accompanying index and show new chart numbers, titles, insets, scales, and type of editions. Publication of these charts is being programmed for spring issue and every effort is being directed towards this aim. However the program is dependent on the construction, dredging, etc., some of which is still in progress at this date, and the co-operation of the seaway and power agencies involved in the reporting on the status of these projects at the opening of navigation in 1959.

A general chart of the overall seaway, Montreal to Lake Ontario, is also planned for publication when the large scale series is completed and while date of publication can not be scheduled, it will be produced as soon as possible.

A supplement to the St. Lawrence Pilot, Quebec to Kingston containing sailing directions for the St. Lawrence Seaway will be available for the opening of navigation in 1959.

In order to ensure delivery of these publications at the earliest possible date, advance orders are being accepted for delivery as editions are printed. The price of these charts is \$1.00 each, payable in advance. See the instructions for ordering and payment of Charts.

#### Instructions For Ordering and Payment of Charts

Payment must be made in advance with order. Charts are not shipped C.O.D. Postage stamps will not be accepted and currency is forwarded at the risk of the sender. Orders by mail must include money order or bankable remittance of appropriate amount, payable in Canadian funds, drawn to the order of the RECEIVER GENERAL OF CANADA and forwarded to:

CHART DISTRIBUTION OFFICE  
CANADIAN HYDROGRAPHIC SERVICE  
DEPARTMENT OF MINES AND TECHNICAL SURVEYS  
249 QUEEN STREET, OTTAWA, CANADA

Material sent in conformity with order is not returnable for exchange or refund.

Unless otherwise requested by the purchaser, charts and publications will be sent by mail, without charge for ordinary postage. Purchaser may request registration of the shipment, or its despatch by special delivery or by air, but where such is requested purchaser will be required to pay for postage used.

Charts of United States waters of the Great Lakes and St. Lawrence Rivers are published by United States Lake Survey, Corps of Engineers, Detroit 26, Mich., U.S.A.

Following the publication of this bulletin notice of each new chart or Hydrographic publication will be given in Dominion of Canada "Notice to Mariners" issued periodically by the Marine Services Branch, Department of Transport, Ottawa.

